

Petersen's

FEBRUARY, 1976

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Photographic Magazine

THE LOWDOWN ON BACKGROUNDS

How Pros Get Those
Great Effects

COLOR PRINTING SERIES: PART 2

HOW TO BUILD A LOW-COST
DARKROOM SINK

SOLVING THE GIFT
PUZZLE



Even if you never own one,



a Nikon will touch your life.



In the photographic world, Nikon has become synonymous with cameras, quality, advanced technology. It is all these things, and so much more. Consider a few of the ways Nikon affects our lives.

The Photojournalist

In the past few weeks she has been shot at, trampled at a celebrity wedding, talked a would-be suicide off a bridge, attended three beauty contests, conceived three original feature pictures on pollution control. All so that we may know a little more of what's going on around us. Like about 90% of all photojournalists, she uses Nikon cameras.

The Marine Scientist

Walking upside down on the underside of the North Pole's ice cap, he explores an unknown world. His two most vital tools are in his hands: A Nikon camera in a special underwater housing, and the unique, amphibious Nikonos underwater camera. With their help, he expands our knowledge.

The Geneticist

Another scientist works in a major hospital. Using a technique called *karyotyping*, he examines and photographs the chromosomal structure of cells from prospective parents to determine if there are aberrations which might preclude their having a child. His microscope also bears the Nikon name. It is an instrument as respected in its field as Nikon cameras are in photography.

The Apollo Astronaut

Our scientists in space also used Nikon cameras, beginning with Apollo 15 and including the recent Apollo/Soyuz mission. In fact, it is the only 35mm SLR camera able to meet NASA's rigid performance requirements.

These people are all professionals in their own fields. All face different problems; yet, for solutions, they look to the same name: Nikon. But not all Nikon users are professionals; the great majority, in fact, are serious amateur photographers, and they, too, enrich and enlighten our world. Like the professionals, they demand the ultimate level of excellence, both optical and mechanical, which only Nikon provides.

But, no one camera and lens combination can be all things to all people. That's why there is the Nikon System, the most complete in 35mm photography. But even that is not all, for there are other Nikon Systems... including Nikkormat, Nikonos, movie cameras, binoculars, microscopes, and a stunning variety of Nikon precision instruments.

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Chromega. The together color system.

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COVER

This month's cover shot illustrates one of the economical and striking backgrounds described in David Brooks' "Nifty, Thrifty Backgrounds," which begins on page 40. Two yards of inexpensive, printed fabric served as background for model Anita Vanburg, who wears an outfit courtesy of Linn's Paper

Doll, Manhattan Beach, California. The cloth was lighted from behind. A second head was used in a Larson Reflectasol 72-inch Hexagon umbrella and placed immediately above camera position to shine on model. Photo taken with Canon F-1 with motor drive and Canon 50mm f/1.4 lens; exposure made on Kodak Ektachrome MS Film using 600 watt-seconds of power with Balcor strobe at f/8.



ON THE SCENE

THE EDITORS



HENDRICKSON



BROOKS



ROSENBAUM



YOB



SENG



BUNCH



LAMPSON



STANFORD

THE SHADOW KNOWS

Whether the proverbial groundhog sees his shadow this month and dooms us all to another several weeks of winter or predicts some much-anticipated springtime weather, our February issue's brimming over with enough new ideas and projects to keep you busy and inspired until June, if need be.

Best of all, most of this month's offerings concern activities and processes that can be explored indoors. So even if your part of the country is besieged by blizzards, snow and cold, here are plenty of opportunities to stage a photographic maelstrom of your own . . .

Kicking off this month's lineup is contributor **Jim Hendrickson**, whose article, "Solving the Gift Puzzle" just might prompt you to dash off for a pot of glue, some mount board and a pair of scissors. Why? To convert an armload of favorite prints into jigsaw puzzles. They're guaranteed to provide friends and family with hours of fun with your own beautiful pictures . . .

If shooting indoors is your bag, Feature Editor **David Brooks'** story, "Nifty, Thrifty Backgrounds" is sure to provoke your imagination without denting your pocketbook beyond repair. The essential element—a clean, uncluttered background—is all too often overlooked. But David's techniques are certain to improve the background in whatever scenes you envision . . .

In Part II of our color printing series, East Coast Editor **Steve Rosenbaum** takes a good look at "The Beseler Color Printing System." This concise and easily digested story takes some of the mystery out of color printing and puts the fun back into color darkroom work. Steve tells exactly what's involved and how it all works to make perfect color photographs . . .

PhotoGraphic's own Mr. Wizard of darkroom technology, **Parry C. Yob**, tells you the how-to's to "Cut Enlarging Exposures: Switch from Low to High" in his latest foray into the realm of scientific techniques . . . And **Walt Seng** tells how to build a darkroom sink. The title of his article, "Plumbing the Depths," may be somewhat facetious, but the step-by-step information and appropriate photographs and diagrams make this project a cinch for do-it-yourselfers low on funds but endowed with simple tools and some imagination . . . Also in the darkroom area is this month's "Blueprint: How to Construct a Borderless Enlarging Easel," by **John B. Bunch** . . .

If all this darkroom activity finds you entertaining exotic daydreams not related to water temperatures, developers and stop baths, but to photographic adventure, turn to **David Lampson's** portfolio. The images of exotic people and faraway places will feed your fantasies for months to come. These photos prove, once again, the appeal of the unknown, but they also increase our appreciation for our own place and time . . .

And, speaking of the exotic, there's certainly still adventure to be found on our own continent. Where? In the ghost towns of the old American West. **Jim Stanford** has captured some of the spirit of the places in this country's not-so-distant past in his feature story, "How to Photograph a Ghost"—ghost town, that is. Stanford has been poking around old mining camps for years, and his passionate interest in a bygone era is catching . . .

COMING NEXT MONTH:

HOW TO PREPARE AND PRESENT A PORTFOLIO—David Brooks reveals his own secrets for showing work effectively.
HOW TO USE A POCKET CALCULATOR IN THE DARKROOM—a simple way to save time and eliminate mistakes.
16 TO 500—Frank Bez shows how to produce stunning photographs with interchangeable lenses.

PLUS:

Color Printing, Part III: The Kodak System—and a lot more!

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Vivitar's LIGHT PHOTOGRAPHY

**Vivitar Introduces
the Complete Light Machine.**

INSIDE

**Red, yellow,
blue flash?**

**The 15-minute
recharge**

**Telephoto flash
at 85 feet with
Kodacolor II**

**Portable ceiling
for bounce light**

**Match your flash
to your lens**

**Foolproof
bounce light**

**VIVITAR
INTRODUCES
a Systems
Approach
to Portable
Electronic Flash**



The Vivitar Complete Light Machine-

a systems approach to portable electronic flash.

Until now all a portable electronic flash was expected to do was produce the right amount of light for a given exposure. The 283 System goes way beyond that. The basic premise behind the System is that it's easier and more satisfactory to change the nature of light at

the source rather than in the camera. So the 283 gives you a terrific variety of options in the control of light. It lets you change direction, color, intensity, and angle of coverage...simply the most sophisticated and versatile portable flash system available.



can expect 75 to 800 flashes with one set of batteries, depending on the mode of operation, f/stop, and flash to subject distance. Recycle time is 0.5 to 9.0 seconds.

110 Volt AC Operation

Optional equipment for the 283 includes an SB-4 AC Adapter for use when there's a house current (105V-125V) outlet handy.

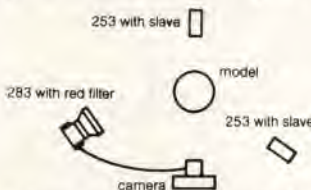


15-Minute Recharge

Another optional power source is the NC-3 NiCad Battery Pack. NiCads have been around for years, but not like these. The NC-3 recharges in only 15 minutes in Vivitar's new "Charge 15," a fully automatic external charger. A "charging" indicator light goes off to tell you the pack is recharged.

Cover photo technical data

The photograph on the preceding page was set up as shown in the diagram. A Vivitar 283 flash with red filter was positioned camera right and aimed slightly behind the model. A Vivitar 253 flash with SL-2 remote flash



trigger was placed directly behind the model's head for the "halo" effect. Soft light on the model's face came from another Vivitar 253 with SL-2 positioned camera left and softened with a single sheet of tracing paper taped in front of the flash. Aperture f8 with Ektachrome X.

What it does.

Let's look at the 283 in use. You're shooting with Kodachrome 25 and your 283 is in the automatic mode. You have a choice of 4 f/stops (f1.4, 2, 4, and 5.6) for depth of field control. (If you were shooting with ASA 100 film, your stops would be f2.8, 4, 8, and 11). You want to use bounce light on your subject, and angle it a bit too. The remote sensor is on the camera and connected by its cord to the flash unit 3 feet at camera left. You're going to bounce the light off the ceiling, so you decide whether to use the 45,

60 or 75° click stop bounce position for the flash head. As you set it, the BCC Bounce Compensator Circuit tells the sensor to adjust itself to compensate for possible underexposure due to bounce fall-off and to "open up" the shadows caused by light coming from above. You push the open flash button, your flash fires, and you look at the built-in LED indicator. It's on for a second and you know you've got a proper exposure. All you've done so far is use the basic 283 flash unit. Now read on...

Power Sources Instant Reload Alkaline Battery Packs

The standard power source for the 283 is 4 AA alkaline batteries in a special battery holder. Extra holders are available, so you can carry fresh back-up batteries ready to reload in an instant. You



The basic Vivitar 283



High Voltage Battery Pack

Our other new power source is the HVP-1 High Voltage Battery Pack Regulator. The HVP-1 converts a 510 volt photo battery to the 330 volts the 283 requires and maintains that voltage to plus or minus 10 volts, the equivalent of better than 0.25 f/stop. Recycle time is 0.5 to 1.5 seconds. In manual operation, you'll get up to 1,000 flashes. And in automatic operation, you may wear out before the battery does.



Flash Lens Adapter

This precisely engineered attachment snaps on over the flash head. It positions Vivitar Flash Filters and Vivitar Variable Angle Lenses at an exact distance from the head. Once you have this adapter and the Vivitar filters and lenses, you can do things with flash you never thought possible.



Remote Flash Trigger

Use one or more Vivitar SL-2 remote triggers to fire additional flash units automatically and in perfect synchronization when using the 283 in multiple light setups.

The Soft Bounce Reflector



Here's a lightweight holder that snaps onto the 283 and allows you to take perfectly controlled bounce/soft light portraits, or still life studies. No more guessing about the reflectance of strange walls or ceilings. You use the back of a Kodak grey card and get a standardized 90% white reflectance so its effect is totally predictable. Used in combination with color filters, gives soft, colored bounce light.

Variable Angle Flash Lenses

Wide Angle and Telephoto Flash. Two lenses for wide angle, two for telephoto. The



extra wide angle is for use with 24mm camera lenses. The regular wide angle is for 28mm camera lenses. Because these wide angle flash lenses disperse the light over a much greater area than normal, Guide Numbers and effective range are reduced accordingly. The opposite is true with the telephoto flash lenses. The short tele lens is for shooting in the 70mm and up range. Guide Number is increased to 79 and automatic range to 56 feet. The long tele lens is for 135mm and longer lenses. GN becomes 87 and the auto range extends to 62 feet. Or, if you're shooting at 1/2 with ASA 100 film, in manual operation you could reach to 85 feet.

(Combine lenses with filters for special effects. The adapter unit accepts both inserts together.)

Filtered Flash

A special six-filter kit (for use with the adapter) includes a 4X neutral density filter for extreme close up flash exposures in automatic operation. A UV filter to eliminate Ektachrome "blues." A Type B conversion filter to give proper color balance when using Type B film with electronic flash. And red, blue, and yellow filters for special effects.



Quick Release Flash Bracket

This bracket gives you a solid, controlled platform for flash shooting. The quick release lets you remove the pistol grip/flash unit for off camera flash and aim it anywhere you want for bounce or direct lighting. The flash shoe rotates 360° for complete control of direction and angle. Choice of 35mm or 6 x 6 camera bracket.

A cable release for the grip is available, too.



See the Vivitar 283 complete light machine at your Vivitar dealer. Because the 283 is a revolutionary approach to portable lighting, we anticipate, at the beginning, a tight availability, especially on some of the accessories. Please be patient. You'll find the system worth waiting for.

Marketed in the U.S.A. by **Ponder & Best, Inc.** Corporate Offices: 1630 Stewart Street, Santa Monica, CA. 90406. In Canada: Precision Cameras of Canada, Ltd., Montreal.

Vivitar®

SELF-ASSIGNMENT

BEN HELPRIN

FORM, SHAPE AND TEXTURE—PART II



□ Last month's assignment provided a series of slides that graphically illustrate how the direction of light affects the delineation of the subject's form, shape and texture. Now, using these slides for reference, let's analyze light's directional effects.

Front light: Vertically level frontal light creates no shadows that are visible from the camera's position. This "shadowless" light will not delineate the form or texture of an object because these attributes are depicted by the contrasting tonalities (i.e., the highlight and shadow areas) of the subject's various planes. Thus, frontal light, which casts no shadows, is referred to as *flat light*.

Frontal light will delineate the shape or outline of an object if the light creates a difference in the tonal level of the subject as compared to that of the background. There are many instances, however, where frontal light will not create this tonal contrast, and the background must be lighted separately to achieve delineation of shape.

Shadowless frontal lighting is usually used in special photographic situations that do not require the delineation of an object's form or texture. An example would be the copying of flat subject matter (photographs, drawings, charts, etc.) that inherently contain the desired tonal variations. Another use of frontal lighting is "high-key" photography which deliberately minimizes the subject's form and texture.

Study your slides and note the difference imparted by level frontal light as opposed to semioverhead frontal light. The higher positioned light does create some contrasting shadows, but these shadows and the subsequent delineation of both form and texture are minimal.

Backlight: A light in this position does not illuminate the front of the subject, and only the subject's dark shape can be seen outlined against the light. Thus, backlight cannot describe a subject's form or texture but does excellently delineate the subject's shape.

Again, note the difference in the pictorial effect created by vertically level backlight and that created by semioverhead backlight.

Sidelight: Light coming from this po-

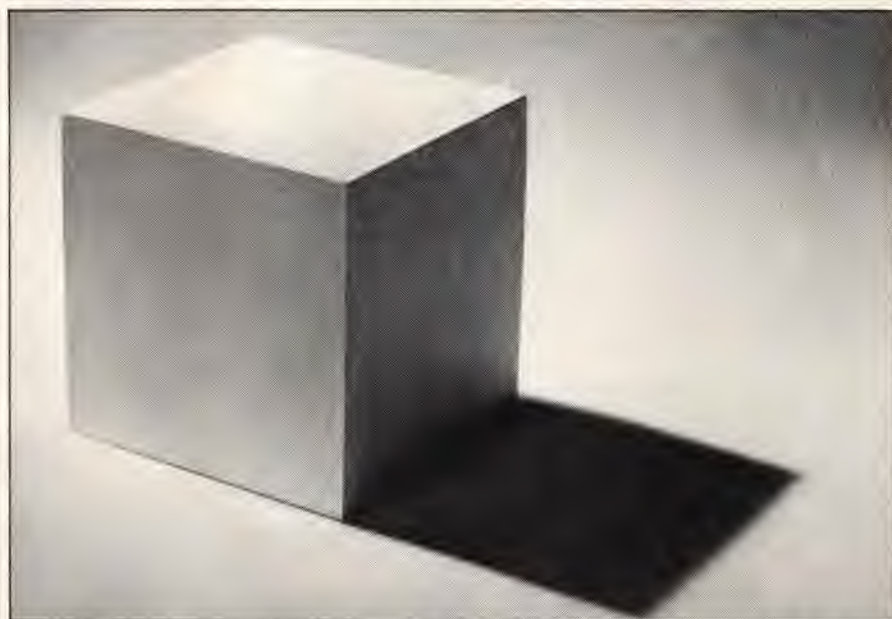
sition is often referred to as *texture light* because it creates extremely contrasting, sharply defined highlight and shadow areas that have no gradual mid-gray tonal change separating them. These highly contrasting tonalities emphasize any minute variations of height and depth in the subject's surface and excellently delineate its texture.

The high contrast created by sidelight, however, delineates only two spa-

ly describes the subject's shape.

Semifront light: This lighting position is excellent for depicting form in spherical objects or in objects that have curved planes facing the camera.

The semibacklight position that excellently delineates the three flat planes of a cube doesn't work so well in delineating the form of rounded objects. The form of a spherical object is pictorially described by creating a carefully gradat-



A 45° high semibacklight, in conjunction with fill light provided by a white cardboard reflector, delineates the three spatial planes of a cubical object and excellently depicts the cube's three-dimensional form. The shadow in the foreground and the tonal separation of the cube from the background further serve to delineate the cube's two-dimensional shape. © Ben Helprin

tial planes. It is difficult to depict form with sidelight because form is three-dimensional. Form is delineated in cubical objects by a minimum of three separate planes and in spherical objects by a slowly graduated tonal change from black to white.

If the sidelight is elevated to a semi-overhead vertical position and fill light is used to relieve the shadow area, some of the subject's form will be delineated. This type of light is by no means ideal for depicting form, but it may have to be used when both form and texture must be described and texture is the more important of the two.

Semibacklight: This is one of the best lighting positions for depicting form in cubical objects. To fully delineate the object's form, however, the light should be raised to the semioverhead position and fill light should be used to relieve shadow areas and lower contrast.

Semibacklight will also delineate the surface texture of an object, but the textural rendering will not be as emphatic as that obtained with sidelight.

When semibacklight is used as the main or "key" light, the background must often be separately illuminated to achieve the contrasting tonality that ful-

ed, light-to-dark tonal change across the object's surface. This evenly graduated change in tonality cannot be achieved with semibacklight when the curved surface is facing the camera. The desired gradation, however, is easily obtained with semifrontal light. Again, the form will be described best if the light is raised to a semioverhead position, and fill light is used to relieve the shadow areas. Also, the background may have to be lighted with another light to achieve a tonal separation that fully describes the subject's shape.

Bottom light: Light coming from below and in front of the subject will produce a tonal effect similar to that produced by sidelight. Bottom lighting, however, appears unnatural because the sun, our only natural light source, never illuminates a subject from this low angle. Consequently, bottom lighting imparts a weird and unnatural appearance to the subject. Such an effect, of course, may be desired.

If you want to further develop your lighting skills, I highly recommend Petersen's *Guide to Photo Lighting Techniques*. I feel it's one of the best books available on the subject, but I may be prejudiced—I wrote it. □

Compare the advantages. FTb is the obvious choice.

We think that the FTb is the best camera in its class in the world. It earned this distinction. It has solid value. Meticulous construction and quality. It has the kind of refined performance features, versatility and human engineering you'd expect from Canon. But don't take our word for it. Decide for yourself.



● Flash Photography

The exclusive CAT (Canon Auto Tuning) system for automatic electronic flash couples both to selected FD lenses and the camera's metering system. To use it, just focus and align meter needles as usual. Whatever you've focused on will be precisely exposed. Period.



● **Versatility** The unique FTb Booster lets the FTb read down to an exposure level of 1/1,2 at 15 seconds with ASA 100 film (EV-3.8). This coupled with the host of Canon accessories for every job from photomicrography to astrophotography makes the FTb a camera a novice can grow with—or a pro can stick with.



● **The Viewfinder** The FTb's viewfinder has everything you need to stay in complete control. It shows shutter speeds, over- and under-exposure warning marks, a stopped-down metering index and meter needle and aperture indicator ring. The bright focusing screen has a microprism focusing aid, and the metering area is shaded, so you never have to guess what you're measuring.



● Control Flexibility

The FTb's Stopped-Down Self-Timer lever activates the self-timer and stops the lens down for checking depth-of-field. Adjacent controls can lock the aperture and lock up the mirror.



● **Film Loading** The FTb incorporates Canon's exclusive QL quick film loading system. All you do is position the film leader, close the back and start winding. It saves time and prevents film waste.



● Exposure Metering

Any photographer serious about precision in exposure knows that it's vital to understand the exact area of the subject that the camera's metering. The spot metering system of the FTb measures only the central 12% of the viewfinder area. In difficult exposure situations, you never have to doubt that your exposures will be perfect.



● Breech Lock Mount

The lens mount of the FTb and all Canon SLR's is the exclusive Breech Lock system. When you push on a lens, the breech lock ring automatically turns slightly. All you have to do for a secure fit is turn the ring a little more. And because there's no turning between lens mount and body, there's no wear to affect sharpness.



● **Lenses** The FTb accepts all of the nearly forty superb Canon lenses, from 7.5mm Fish Eye to 1,200mm Super-Telephoto. These lenses are tops in sharpness, contrast and mechanical quality. They incorporate all of the latest optical refinements, including Spectra and Super Spectra Coating, the Canon Floating System and the most modern optical glasses.

Canon[®] FTb

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 Canon Optical & Business Machines Canada, Ltd., Ontario

NEW MACRO VIVITAR

Traditionally, macro capability is shown by peering into the private life of a grasshopper, or filling the whole frame with a dull picture of a stamp. The new Vivitar 55mm, f2.8 macro lens deserves better. It starts out as a true macro lens. But note, it lets you focus from 1:1 (lifesize) to infinity, *without an adapter*. And it has the speed to replace your "normal" lens in most working situations. We think a bit more lively demonstration is in order. So while the lovely young lady gyrated our photographer took the full figure picture shown here. Then he moved in for a series of true macro still lifes of costume detail, working as close as 8.5" from the film plane. Certainly the new Macro Vivitar is superb for intimate spying on insectivora and makes an ideal copy lens as well. But this light, compact, fast lens doesn't limit you to the usual macro treatments. To experience the remarkable versatility of this lens for yourself, take your camera to a Vivitar dealer and see Macro through your own viewfinder. The Macro Vivitar fits all popular 35mm SLRs including Canon, Konica, Mamiya/Sekor, Minolta, Nikon, Nikkormat, Olympus OM, Pentax screw mount and Vivitar.

Vivitar 55mm
F2.8 automatic
macro lens



OTHER VOICES

BLUEPRINT DANGER

This letter is in reference to the "Blueprint Series," by Gary L. Wilson, page 57, December, 1975 issue.

I am surprised, disappointed and alarmed over the article as published. In the article, the general disclaimer issued in the last paragraph, which states that a potential danger to the user may exist, and the disclaimer that Petersen Publishing Co. cannot be held responsible for accidents arising from misuse or faulty construction, obviously does not take into account the serious nature of not only the danger to the user but also the violation of federal law. It is absolutely prohibited by the Department of Transportation Regulations to refill the cylinders mentioned in the article. In addition, federal law prohibits transportation if refilled in any way or manner—a penalty of up to \$10,000 fine and 10-year imprisonment (18 USC 831-835) indicates the seriousness of this federal violation.

These refrigerant canisters or cylinders are usually constructed of aluminum or mild thin steel. Refilling such a cylinder to 200 pounds per square inch pressure, under certain circumstances, can exceed the pressure safety margin of the cylinder wall, particularly if the cylinder is carried in a car trunk to the filling station where the cylinder has attained a higher than normal temperature. Refilling with compressed air causes increased temperature within the cylinder as the cylinder fills and may cause a rupturing of the cylinder with almost explosive force. These cylinders are also extremely fragile, and scratching of the surface or deep dents in the surface can cause the cylinder to lose a great deal of its integrity, thus a weakened area is created in the cylinder.

They also can rupture under the appropriate situation, which is not unlikely in the way cylinders are handled by nonprofessionals. In addition, the valve body itself is not designed (even with the adapter kit) to be used continuously for charging and discharging. These units are relatively fragile and accidental striking of the manifold can cause immediate discharge of contents with explosive force.

If you have never seen the effects of shrapnel from an exploding gas cylinder or a ruptured gas cylinder, it is a sight not pleasant to behold, not to mention the possibility of loss of life or sight due to the rupture possibility. By the way, safety valves have been known to occasionally malfunction after improper

handling.

I found the article to be interesting but highly irresponsible. While ingenious modification of certain equipment for use in photography and photographic darkrooms does exist, one must temper the use of these products with ordinary common sense.

Robert H. Schneider, R.T.N.M.
Director
Department of Nuclear
Medicine and
Department of Bio-Medical
Communications
Far Rockaway, New York

PhotoGraphic extends its apologies to all of our readers for the "Blueprint" in question ("How To Construct A Dark-room Air Compressor," December, 1975 issue). Please make note of the federal law which prohibits the refilling of these cylinders and of the potential danger involved. We caution our readers not to attempt to construct this device and to rely upon commercial products, which are readily and inexpensively available at well-stocked camera stores.—Ed.

A NEW VOICE

I just wanted to let you know how much I was inspired by "Cards: Quick & Easy," by Karen Geller in the November, 1975 issue. The accompanying is a direct product of that article.

Actually, this is also an open letter to the staff of PhotoGraphic, who has aided me immeasurably over the last several years. Excuse me for not voicing my thanks before now.

Jack Krichmar
Enid, Oklahoma



PHOTO CREDIT

It was just brought to my attention that the photo credits in my article, "The Teaching of a New Language?" (October, 1975 issue) were all attributed to me. This is not entirely accurate, and I would like to give credit to those who did take the photos.

The photo taken at Pacific Street School, Brooklyn, New York (page 82) was made by Grace George Alexander, Assistant to the Director, Bureau of Art, Board of Education of the City of New York. The photo above it was exposed by one of the students. I hope there is still time to clarify this for my readers.

Robert Routh
Anaheim, California

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GUIDE LINES

PAUL R. FARBER

A PEEK INTO THE FUTURE



□ One Saturday morning, during a visit to my local camera store to pick up some darkroom supplies, I happened to run into some photographer friends of mine. Our animated conversation eventually zeroed in on the current crop of photographic hardware available to us, and as we scanned the many display cases, we couldn't help but make direct comparisons to the old and used equipment set apart in special display cases.

We all agreed. Today's hardware was absolutely superior to what we used many years ago. All of which gave rise to a degree of speculation concerning what was going to be available to us in the near and far future. The discussion bordered on the outrageous as our imaginations took off on flights of fantasy—triggered, no doubt, by current technology, rumors we have all heard and some speculation by the people behind the counter.

An hour or so later, we retired to a corner coffee shop to continue the discussion. We talked about what we would like to see, what we would like to have and what we needed in more realistic, practical terms. After all, much of what we had talked about earlier bordered on the realm of science fiction. Our enthusiasm waned. Being practical and realistic were not as much fun as giving vent to our wild imaginings. The group broke up, and we went our separate ways. It was great fun while it lasted.

The camera store incident took place many months ago and was all but forgotten until I received a telephone call from one of the product managers at Ponder & Best, the people who distribute products under the Vivitar label. The end result of that call reawakened the memory of the camera store discussion. I can tell you here and now, much of what we had speculated about on that day was *not* fantasy!

You see, I was invited to spend a day at one of the most interesting, fascinating companies that I've ever visited. The firm, Optigon, is located in West Los Angeles and represents one of the most complex, sophisticated undertak-

ings in the fields of optics, electronics and design capability that one can possibly imagine.

Now you must understand, this is *not* a puff piece for Ponder & Best. Optigon Research & Development Corporation is a separate entity which does all of the research and development, plus some light manufacturing, for Ponder & Best. They have been contracted to give 100 percent of their output to developing products to be sold under the Vivitar label. The thing about Optigon that

Some of the new products to which Optigon has contributed, all Vivitar identified, are the Series I lenses (macro focusing zoom lens; the solid "Cat"); many of the new TX lenses (the TX lens adapter system was Optigon refined), all of the 110 cameras and all of the new darkroom products. Additionally, Optigon supported the development of the new Vivitar 283 modular electronic flash system. All verifications of operational characteristics of the 283 flash system are done at Optigon, as



Above, from left to right, Milton Rosenau, vice-president and general manager, Raymond Toy, optical-mechanical engineer, G. Bruce Shomler, president and Arthur Blanchard, supervisor of the machine and model shop, check out one of their latest fittings for Optigon's 36-foot-long optical bench.

stagger the imagination is the fact that they have located and hired experts in all available fields of photographic endeavor and pursuit and have assembled them into one, incredible team.

Basically, Optigon consists of three key areas. The first of these is the optical lab, which is probably one of the most extensive in the United States. It is used for computer-developed optical designs. The second key area is the lighting and electronics lab which, like the optical lab, is used for design, verification and testing. The last key area is Optigon's exquisitely appointed machine shop, which is used to make models and to test and evaluate product design. All of the key areas interact in order to take full advantage of the collective expertise.

Here's how it all works: a product manager at Ponder & Best, having run consumer panels plus having done extensive market research, determines what is needed in the way of a product. Optigon is contacted, and their team of experts is given the assignment of doing the actual research, development and design of the product. Once the product has been developed to the complete satisfaction of all concerned, it is manufactured either in Japan, the United States or wherever the best possible product can be properly manufactured. In many cases this may involve joint ventures,

well as the manufacture of the high-voltage battery pack, the 15-minute charger, the bounce reflector and the SL-2 slave.

Although you may say that all of the foregoing is well and good, that I've been speaking about things that we already have on the market (even though most of us had no idea that the products were engineered and designed in the United States), what about what we *haven't* seen?

Well, although I signed my life away, promising not to reveal any proprietary information about new products, I can tell you that I've witnessed one of the most radical designs in color heads that I've ever seen. The new color head is different, so different in design, in fact, that when you see it, I guarantee it'll blow your mind. It promises to revolutionize your color darkroom printing as well—particularly for those of you who like to make direct color prints from color transparencies.

Although the idea of research and development companies is by no means novel, perhaps what's going on at Optigon is a precursor of things to come. A future where American dominance in the fields of plastics and integrated circuitry may well be instrumental in shaping the course of photography for years to come. At Optigon, it's here, right now!



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The picture at right appeared in the August 1968 issue of *Vogue*. The model, a new fashion icon, was depicted rather than idealized. Nevertheless, the photograph marked the advent of the sexual revolution of the 1960s, a phenomenon that captured a new freedom in fashion and the photography. The model was dropped, as *Vogue* put it, "the model's body," and pictures of the woman's body replaced the body in the pages of the magazine, accompanied by advice to readers on how to be "sexually successful." Undoubtedly, *Vogue* got around to a similar version of a *Playboy* magazine staple: a centerfold, double-trace nude girl, who was photographed by Irving Penn.

Men got into the act in 1968, when the French fashion journal *Elle* published a head-on photograph of a male nude, in an ad for underwear. The next step was to bring men and women together in fashion pictures, with the male model presented not as the supporting background figure of the past but in a more candidly sexual role. By the start of the 70s, men and women were appearing together in high-fashion photographs, clothed to be sure, but often intertwined (copposite).

The photograph on the left, instead of being that of a male model, was a photograph of a female model. The model is a young woman, a European-type beauty, with blonde hair, wearing a white dress. The photograph is a full-length shot, showing the model from the waist up. The model is looking towards the camera with a slight smile.

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MARKENE KRUSE-SMITH

SHOOTING IN THE SNOW



□ This winter, our editorial offices have been besieged by a veritable avalanche of letters from readers who plan to film in the snow and cold. A couple of such adventurers are preparing

to accompany a mountain climbing expedition bound for Chili this spring and need to know how to "winterize" their gear. Others are looking forward to exploring Rocky Mountain wilderness areas in Colorado's national parks or plan to visit the Northeastern parks, the Appalachian Mountains, the icy river regions of the Midwest or the High Sierras near the Pacific Coast. Regardless of your destination, the movies you make in wintry deserts, mountains and canyons are sure to be a lot more together if you have firm intentions about what you want to get on film, your equipment is in order and you know what sort of conditions you're likely to encounter during your foray into the icy regions.

What you plan to photograph will dictate, to some extent, what equipment you'll need, but a major consideration should be portability. As you ski or hike or snowshoe through snow-covered fields, you'll be thankful if you're not overburdened with paraphernalia. Here's where super 8 really beats 16mm equipment. Most super 8 cameras are light and compact. The small, drop-in cartridges are easy to load quickly in cold weather and allow you to carry ample extra film in a small space. The trick is not to let the comparative portability of super 8 equipment fool you into taking up excess space with accessories you don't really need.

Most major government and filmmaking expeditions to arctic regions use 16mm moviemaking equipment which, I'm told, is kept warm and protected by heating blankets powered by generators or battery units (the same generators or batteries they use to power lights brought along to illuminate settings in low-light situations).

If you can't bring along some sort of warming blanket, store batteries in a pocket near your body to prevent battery failure whenever they are not being used. Needless to say, it's a good idea to bring along extra batteries and keep them warm as well, since your light me-

ter, power zoom and camera motor are dependent on good batteries to function properly.

How do you go about "winterizing" your camera? Take all your photographic equipment to an authorized camera repair service before you leave on a trip to colder climates. During the



Moviemaking in the snow can be a rewarding challenge if your equipment has been "winterized," and you're aware of your camera's capabilities in cold weather.

winterizing process, the lubrication your camera came with is removed, and graphite is used to lubricate the moving parts instead. It's very important to have your equipment winterized before you try to shoot in places where temperatures are below freezing, or it will behave sluggishly and may stop working altogether. As soon as you return from the expedition, remember to get all equipment "dewinterized" and regular lubrication put in again. If you have any questions about your particular movie equipment, ask the people at the camera service center or write a letter to the product manager of your camera manufacturer.

You're better equipped to film in the snow if your super 8 camera's zoom lens has both electronic and manual capabilities, since the lens can be hand-operated if the automatic zoom works poorly due to excessive cold.

Most of the new super 8 cameras feature automatic exposure control. This is so that, under most shooting conditions, you don't have to worry about light readings and f-stop settings. A built-in electric eye meters each scene to read 18 percent on a neutral gray reflectance card. With most conditions you encounter this feature makes filming very simple—all you have to do is focus and shoot. But the electric eye becomes a problem in certain shooting situations.

For example, if 90 percent of the frame is filled with glistening white snow and you're filming a skier skimming over the moguls in his navy blue parka, the automatic exposure feature ceases to be a convenience. The cam-

era's electric eye, trying to meter the scene to read neutral gray, will automatically stop the lens down, and the whole scene will be inadvertently underexposed by about two f-stops. The snow will look flat and gray when the film is projected, and the skier may be quite underexposed.

With a manual override for your camera's automatic metering system you're able to open the lens up about two stops from the suggested aperture setting to prevent a snowy scene from being underexposed. However, many super 8 cameras are not equipped to manually override the automatic exposure control. If this is the case with your camera, you're going to have to "fool" the electric eye in order to properly expose a snowy landscape.

A devious way to outsmart the automatic system and, thus, maintain proper exposures, is to tape a .60 neutral density (ND) filter gel over the electric eye for a two-stop compensation. Simply tape the ND gel so that it is covered to adjust for underexposure. Check the camera manual if you can't locate the electric eye. Again, address any questions concerning your particular camera's capabilities to your local service people or to the product manager of your camera manufacturer. Addresses of manufacturers and distributors for almost any kind of photographic equipment can be obtained from your local photographic dealer or service center.

Even when the temperature is extremely low, the sun can be very bright, and reflection and glare are intensified by broad expanses of white snow. To give depth and texture to the snow, it's best to film with the sun to the side or front of the camera where shadows will dispel the glare and help create interesting patterns in the snowdrifts. If you're shooting toward the sun, never let its rays fall directly on the lens of the camera. Use the shadow from your hand or a nearby tree to block the rays.

Experiment with chiaroscuro, the arrangement of light and dark areas in your movie compositions, to put shadows and highlights to work creating new shapes and adding dimensions to the movie. This effect can be especially dramatic when it's accomplished with black-and-white film. Beautiful contrasts can be found in the hard geometric lines of a bare tree and rocks against the rippled snow and white crested boughs. Look for compositions and designs emphasized by these elements. Eliminate the unnecessary and move in as close as you can to fill the viewfinder. The frames for a movie can be just as carefully composed as pictures taken with a still camera to make the images abstract and beautiful. □

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CAMERA ON CAMPUS

ROBERT ROUTH

DON'T ASK ME WHAT I'M TEACHING



□ When high school photography teachers speak in public the most carefully avoided subject is *how* photography should be taught in high school. This is probably because the risk of being

called upon to offer anything resembling firm evidence to back up one's opinion is just too great. Oh yes, in private, there are occasional pronouncements which reflect attitudes ranging from "encouraging self-expression" to "learning the basics," measured by the inevitable assignment purportedly designed to leach out of the student some important educational achievement.

The truth of the matter is that most high school photography teachers are not at all sure what they should be teaching in their classes. I'm not referring to the obviously poorly trained teacher but to the experienced teacher who takes enough time to wonder and to worry. I have yet to meet a high school photography teacher who expresses a clear-cut idea of where he is going and why.

Such comments are not meant to be a put-down of photography teachers but rather a means of illustrating the frustrations they must feel in coordinating the many potentials of photography into a comprehensive plan. The most tempting, easily defined and, therefore, the most generally selected is a series of technical exercises accompanied by a flurry of mimeographed instructions, charts and diagrams, climaxed by assignments which can be translated into a definitive grade for the student. This traditional approach is based on the assumption that this is the proper order of events for gaining access into photography. Little effort is made to deal with the photographic image itself—only insofar as it reflects the idea of the assignment. Little effort is made to discover what is happening to the photography student during the process of selecting subject matter, exposing, developing and presenting it. Even less effort is made to discover what the student *feels* about his peers' images.

The interesting thing about teaching in the traditional manner is that it generally works up to a point. Some as-

pects of photography are sheer magic. No matter what your approach to photography may be, the very act of using a camera and developing and printing involves a carnival sense of "now you don't see it; now you do."

To a large extent, photography is and should be a personal affair between the student and his world—his/her opportunity to make judgments, to plan and to be responsible for results. The student should certainly not have to get bogged down in a textbook designed to clarify every fact and method whether or not relevant to the actual making of a photograph.

POSSIBLE OBJECTIVES OF A HIGH SCHOOL PHOTOGRAPHY EDUCATION

One function might be termed the "caretaker," where the photography classroom is loaded with misfits from other classrooms rejected by teachers who have enough clout to turn away nonlearners and troublemakers. While admitting that photography does have at least a short-range advantage in interesting the problem student, the corraling of large numbers of them into the photography classroom can only lead to anarchy—depriving the interested student of a full opportunity to learn. This is not to say that problem students could not, under special circumstances, be effectively taught in programs of limited enrollment.

Preparation for a career, another objective, can at best be fruitful for only a small percentage of the thousands of high school photography students taking classes across the nation, leaving open for serious speculation the value of this emphasis to so many for the ultimate benefit of so few.

Then there is the objective that is meant to expand the personal visual development of the student who uses photography as a vehicle to broaden his world by giving him a better understanding of others, of his environment and, ultimately, of himself. However, this approach requires a select group of students, a fact of life not often encountered in present photography classes.

Under some art-oriented photography teachers, the objective of a photography education stresses the aesthetic approach, which treats photography as art and encourages the student to interpret the final result as an art object.

Another objective is the emphasis on photography as a hobby. This becomes merely an unfettered adventure into the vernacular of camera equipment and processes and just not taking too seriously where it all ends up.

Then there is the college preparatory.

Problems inherent in this approach are summed up by a high school teacher in his response to a community college educator who deplored the photo education his students had encountered during their high school days. "You in your ivory towers don't know what many of us have to put up with. Your students are there because they want to be; many of ours would rather be anywhere else. Even if we provided them with the kind of background you prefer, what makes you think they would listen, or even remember, two years hence?"

Problems in the high school photography classroom are not only reflected in the diversity of students and objectives. The range of the abilities and training of the photo instructor are just about as diverse. Can any positive programs really evolve? I think so.

First, let's consider *any* common factors shared by all. Foremost is the interest most students have in photography. Then there are the equipment, materials and processes necessary to actually produce a photograph. Note the word, *actually*. That's it! The built-in incentive, equipment, materials and know-how are fundamental to all photographic teaching, but put in anything else, and you "...run the risk of destroying or at least diminishing the sense of joy that anyone would feel in developing a skill about themselves," stresses Professor William M. Resch, California State University, Long Beach. This statement has profound implications to the teaching of photography. It places a great deal of the responsibility of the student's development on himself, and quite probably *that is the way the student wants it*. But this is not, and should not be, the total story. At this stage, the student has learned only to use the tools and a visual alphabet. Now is the time to learn how to visually talk and read.

In a recent letter, Professor Richard Zakia, Rochester Institute of Technology, Rochester, New York, quotes from the manuscript of Minor White's new book, *Visualization Manual*: "In spite of a vast overpopulation of photographers, photographic education continues to turn out more producers of photographs, while ignoring programs to teach audiences to read photographs."

Another way to put it—behind all of those cameras pointed at still-life studies, heads and landscapes are people. They are people learning about people and their environment through visual images that can help make us more aware of some of our most pressing problems and greatest opportunities. This could and should be one of the basic goals of photographic education in high school—to help the student learn to see and grow. □

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CLUB CLOSE-UPS

JOAN YARFITZ

WINTER PLANS FOR A SPRINGTIME CELEBRATION



□ Last year at about this time there began a flurry of activity in certain quarters of San Francisco. Now most of you wouldn't consider February exactly the time of year for great hustling and bustling—except, of course, if it involved ski trips or clearing the driveway of snowdrifts. Winter snow and cold cover much of the country, and scurrying around probably ended with the final New Year's bash. So why all the fuss up in San Francisco? People were making plans for a gala springtime event—the 5th Annual North Beach Photographic Art Fair—a happening that promised to promote photography as an art form and to establish photographers as artists.

Since that time, I've received many letters from clubs across the country wanting to know how to organize and promote photographic art fairs similar to this one, so I investigated the North Beach event. I wondered about the festival: How was it organized? What were the costs involved? What made it such a local success? Was it a feasible idea that could be sponsored by individual camera clubs? I discovered that not only was the concept workable but highly rewarding for both the organizers of the event and the community—photographic and otherwise. All that was necessary were a dedicated group of photo enthusiasts and plenty of preparation time. The dedicated group of organizers were the energetic employees of Columbus Camera, one of San Francisco's busiest camera stores, and plans and proposals were being drawn up for the May event four months ahead of time—in February. I called Columbus Camera to discover the particulars and was put in touch with Boots and Lance Hughston, avid photographers and promoters.

The North Beach fair was going to be an outdoor event, so an appropriate site had to be chosen. A small park with plenty of parking facilities nearby and easy entry and exit was selected. Then came the pages of written proposal, which were to be sent to the mayor, the department of parks and recreation and the police and fire departments for final

approval. Outlined in the proposal were such items as direction of traffic, security, clean-up and safety plans, practical routes of ingress and egress, even including such details as how much fertilizer and seed were to be given to the city to repair the park's facilities after the event had taken place.

With the plans approved, the promotional work could begin. The sponsors



Eye-catching handbill designed by Gilbert Johnson for the 5th Annual North Beach Photographic Art Fair.

declared the event a nonprofit venture and then began an intensive program of media saturation. Radio and television stations were contacted and told of the event; spots were written and taped for both. Colorful, eye-catching handbills and posters were designed by a local artist. These were distributed and posted throughout the city. Newspapers and magazines were asked to publish news of the upcoming event.

All of the local colleges and art schools where photography was taught were contacted—teachers being encouraged to have students enter their work. Local camera clubs and photographic groups were notified—members invited to attend and display their work.

A registration form was written, including such obvious particulars as name, address and phone number, in addition to the status of the entrant—individual, group, school and how many people were to share the booth. A brief description of the photographer's work was also requested. Booth space would be provided with a \$15 donation, and all work to be displayed had to fit onto a 4x8-foot display board. The form explained that the \$15 donation was to cover the costs of the booth, awards, advertising, security and clean-up. All registration forms and money had to be

in no later than three weeks before the event.

A panel of judges was selected from teachers at the local colleges, professional photographers and critics. The judges would view and select the prize-winning photographs over the three-day fair period. Over \$500 in prize money would be awarded, or winners could choose equipment from the camera store of equivalent value. Winning entries would be in a touring exhibition, and they could not be sold or reproduced without the photographer's permission.

So far, much of this could possibly sound pretty obvious to clubs who have sponsored competitions and/or exhibitions in the past. But as I mentioned earlier, this was a very successful, unique event, an ultimate "happening."

Now what happened was this: Boots and Lance, being the wizards of promotion that they are, decided to give the photographic community a taste of the sublime as well as the usual. They brought in live bands for the event, rock and jazz, bluegrass and swing. They drew up blueprints for a bandstand and rented an amplification system. The entrants and attendees could dance as well as view photographs! Jugglers, clowns, a mime troupe and even a fire-eater were to be on hand to entertain the old, delight the young and provide unusual subject matter for those with cameras. Refreshment stands were to be set up, which would not only provide soft drinks and hot dogs but also such luscious delicacies as fresh fruit topped with yogurt and cool sherbets. People could come dressed in exotic costumes if they wished.

As you can well imagine, all of this made for a memorable weekend gala, one that San Franciscans will be remembering and talking about for quite some time. And it really wasn't that difficult to accomplish. It began with an idea, the cooperation and sponsorship of an interested group and the hard work and organizational skills of a number of dedicated workers. Your club has all the ingredients for putting together a similar festival in your community. If you're interested in *really* doing something different for the art of photography, now's the time to begin working.

If you need help, you can write to Boots Hughston, c/o Columbus Camera, 755 Columbus Avenue, San Francisco, California 94133; he promises to try to answer all queries. He also invites all camera clubs to enter the 6th Annual North Beach Photographic Art Fair—a happening guaranteed to display your photography in a totally unique environment. □

The photographer's choice.



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It delivers up to 3,000 flashes, from one set of AA batteries. It costs what you'd expect to pay for a non-thyristor electronic flash, and it's as beautifully built as any Braun flash ever was. You even get full wide-angle coverage, a built-in computer indicator light (to show you whether you've got enough light available for the shot), and a choice of f/stops like all Braun VarioComputer electronic flash units.

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The lowest-cost way to enjoy the benefits of Braun automatically-measured built-in bounce flash. (The first portrait you shoot will show you what they are.) Long-lived, rechargeable nickel-cadmium batteries and wide-angle coverage, too, along with AC capability.

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As many as 2,400 flashes per charge, a guide number of 70 for ASA 25: that ought to light up your eyes, and anything else you want lit. A built-in indicator light; wide-angle coverage; built-in bounce, AC capability. (It is a Braun flash, after all.)

Braun 40VCR, for photographers in a hurry.

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WHERE THE ACTION IS

DAVID SUTTON

PROCESSING IN TRANSIT



□ It had been a good day of shooting. As the sun faded below the horizon, I gathered my gear and moments later was driving toward a hotel 25 miles away where I was staying during an out-of-town assignment. All I wanted to do was check out, catch a late flight to L.A. and get my film into the night-drop for overnight processing. Other assignments were on tap and time was of the essence.

As I entered my room the phone rang. "Hi, Dave, how did the shooting go?" "Fine!" "Great—I need it tomorrow!" "What? You must be nuts!" "No kidding, Dave, my back is to the wall, I'm up to my ears in deadlines—your layout has been pushed forward into an earlier issue." "Level with me, is this a final deadline?" "It's worse—the bottom line! Find a custom lab for immediate service. Edit the material, have some blow-ups made, add them to an overall selection of your key color shots and ship to me from the airport tomorrow—before you fly home. A messenger will make the pickup at our end, Bill us for the special lab runs and rush charges plus double for your extra time. I'll call you day after tomorrow for the caption information. Thanks!" Click. *I had a dead-line.*

The following day a number of planes took off—one flew me west to L.A.; another headed east carrying a package of proofs, prints and color slides. The stuff was fine; the processing excellent. I was more than relieved; as pressure deadlines go, this one was a real lulu.

The foregoing is a complete contradiction of my airy statement in the December, 1975 issue ("Custom Labs") that I always run a test roll through a strange lab, inspect the premises, etc. But in this case there simply wasn't any time. I had a pressing deadline to beat. No time for tests. It was go-for-broke, and fortunately, I lucked out.

The moral, if one is to be drawn, is that photographers must be prepared for any contingencies that might arise, and believe me they do, more often than not. That's professionalism! Whether you shoot for fun or profit, the pride you take in your work and processing of same should be no less



Goldie Hawn and George Segal during a tender scene on the location filming of *The Duchess and the Dirtwater Fox* inspired me to capture the feeling of an old western. On-the-spot processing enabled me to see the results the following day. © David Sutton

than that of the highest paid professionals in the land. I know many nonpros who are just as concerned with the quality, cleanliness and aesthetics of their work as any of my fellow colleagues—in some cases even more so.

For example, let's assume you are shooting away from home. You are anxious to see what you have shot, and you would like to see it *now*, but you're used to waiting until you return home to the safety and comfort of your own darkroom or favorite lab. You could send the film to your local camera shop or to Eastman Kodak, and it will be processed and waiting for you when you get back. That would cut down the delay, but you'd be in one place, your material in another. You wouldn't see it until you return home! If you happen to be shooting a great deal and your camera malfunctions without your knowledge, you might be dooming yourself to disappointment and the loss of once-in-a-lifetime vacation shots or possible revenue. Of course, you should constantly check equipment—that's obvious—repairs while traveling are time-consuming, and your schedule might not permit it. If you have any doubts about how the photos are turn-

ing out or you're anxious to see what you are getting right away, a custom lab is a safe bet.

Most custom labs have one thing in common—24-hour service, plus a night-drop-slot for overnight processing, and most offer quality results. You might get in a bind like I did, and often do, so I'll go a step further by mentioning specific labs I am familiar with—labs you can use without fear of damaging your prized photos. Since there are a lot of good ones, I'll just list some from a geographical standpoint.

In *New York City*—Modernage Photo Services and Berkey K & L Custom Services. In *Boston*—Boris Color Lab. *Washington, D.C.*—Image, Inc. *Chicago*—Astra Photo Service. *Miami*—Custom Labs, Inc. *Dallas* and *Kansas City, Missouri*—Meisel Photochrome Corporation. *Seattle*—Dudley Hardin & Yang; they have bailed me out on several occasions. The same can be said of The Photo Factory, in Puyallup, 22 miles southeast of Seattle—Jim Canterbury will handle your processing needs as if they were his own. In *Denver*—The Pro Lab—Sandy Robbins and Mike McClanahan did a great job for me months ago during a six-week assignment in that area. In *San Francisco* try Ramell Photographic.

For *Southern California*, I recommend Charles Photo Lab in North Hollywood. They have handled most of my processing for quite a few years. In Hollywood, call Producers's Lab or Photo Image. They offer custom quality and very rapid service as well.

Schaeffer Photo Rapid Lab, located in the heart of Hollywood, offers the latest innovation in lab technology—while-you-wait processing. Hand them a 50-foot cartridge of movie film, and it will be returned ready for projection in 8½ minutes flat. A roll of film and proof sheet take 15 minutes—8½ if you only want negatives made.

Peacock Color, located near downtown L.A., specializes in "R" and Ciba-chrome prints. The price is right, so is the quality. Should you be in the far end of the San Fernando Valley, call Spectra Lab, Inc.

Parting shot—whatever labs you might use, check the security of the night-drop and/or pickup boxes—some labs leave much to be desired in that respect. See you next month. □

breakthrough.

Now West German professional lenses priced the incredible Calumet way.

When you make the world's most popular view camera, you learn a lot about view camera optics. We took what we learned to one of West Germany's most respected optics manufacturers. There, the strict design specifications of Calumet were teamed with tradition-rich West German precision craftsmanship to create the new Calumet Caltar® II lenses.

The new Caltar® II incorporates six element formulas of the highest quality rare earth glass lenses mounted in Copal shutters.

The result is a superb collection of view camera lenses which offer the professional the creative excellence you've been searching for. The new Calumet Caltar® II lenses are available in 65mm, 90mm, 135mm, 150mm, 210mm, 240mm, 300mm, and 360mm-focal lengths.

Never before has Calumet experience been teamed with the finest West German optical craftsmanship to produce a superior series of view camera lenses priced from less than \$200. Only Calumet's direct-from-the-factory prices make these unheard of values possible.

For descriptive brochure on the dramatic Calumet Caltar® II breakthrough in professional optics, simply write to:



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PRODUCT PROOF SHEET



FR MARKETS DEVELOPING KIT FOR 110 VERICHROME PAN

The New FR 110 film processing kit, Tri Pack X-110, is designed for fine grain and excellent contrast in black-and-white negatives. The kit contains fine-grain developer, hardening short stop and neutral PH rapid fixer in eight-ounce bottles; chemistry is ready for use without dilution. Tri Pack X-110, \$4.50, will process five rolls of 12-exposure Verichrome Pan. Developing time at 70°F. is nine minutes (times may be varied depending on desired contrast), and fixing time is two minutes. Contact FR PhotoProducts, 420 Commercial Square, Cincinnati, Ohio 45202.



ILLUMINATE YOUR WORK

The Translamp offers a unique way to display your photos. It features four translucent plastic panels 10½ inches square in which prints or transparencies can be sandwiched. Photos can be easily changed as the panels slide in and out of slots in the legs. Lamp is 26 inches high and finished in white. Photos may be trans-illuminated by bulbs up to 100 watts. Shipped flat, Translamp is easily assembled in minutes; cost is \$29.95 ppd. Contact Translamp, 323 East 78 Street, New York, New York 10021.



NEW SYSTEM FLASH FROM VIVITAR

The Vivitar 283 Auto/Thyristor electronic flash system comprises more than a dozen accessory items designed to open a wide range of creative flash possibilities. The flash unit is equipped with a removable remote sensor which connects to the unit itself or mounts on a standard accessory shoe for automatically correct bounce-flash exposures. The head tilts 0-90° with click-stops. Bounce Compensator Circuitry (BCC) automatically increases the light output when the 283 is set for the 45°, 60° or 75° bounce positions. It offers four automatic f-stops for maximum depth-of-field control. The unit offers an ASA guide number of 60, an illuminated calculator dial with on/off switch and a choice of power supplies. The 283, suggested list price \$119.95, comes complete with remote sensor, 1.2 meter sensor holder cord, 12-inch PC-1 shutter cord and alkaline battery holder. An optional spare alkaline battery holder, AP-1, has a list price of \$2.95. With the Model SB-4 AC adapter cord, \$11.95, the unit operates on standard 120-volt household current. Vivitar NC-3 nickel cadmium battery pack provides a powerful, short 15-minute charge with the Vivitar Charge 15 recharger; together these list for \$49.95. Additional NC-3 battery packs are \$14.95. The Vivitar HVP-1 high-voltage battery pack is designed for situations requiring many sequential flashes. This pack comes with a strap and shoulder pad and is designed to carry a 510-volt battery (not included) for \$29.95. Vivitar has also introduced an entire system of optical accessories. These accessories attach via a lens/filter adapter, \$4.95, which snaps onto the front of the 283. The adapter accepts one or both types of inserts simultaneously. The variable angle lens kit, \$7.95, allows the photographer to alter the angle of coverage of light output to cover lenses as wide as 21mm or direct a concentrated beam for telephoto lenses up to 135mm and longer. The filter kit, \$11.95, contains six filters: a 4X neutral density for close-up flash, UV, type B conversion and one each of red, blue and yellow filters for creative effects. The multifaceted system also features a soft light/bounce diffuser kit, standard three-foot coiled shutter cord, quick-release side-mount pistol grip, 35mm camera bracket and a 6x6 camera bracket for use with the grip, a cable release, soft pouch vinyl carrying case with belt slip and SL-2 remote flash trigger with rotating hot shoe. Contact Ponder & Best, Inc., 1630 Stewart Street, Santa Monica, California 90406, for details on the full system.



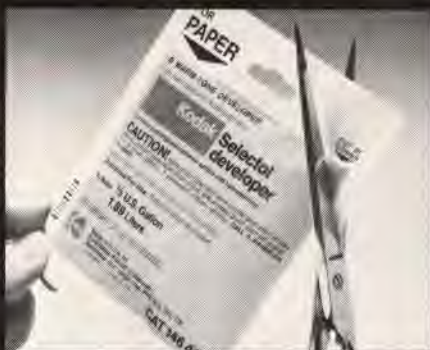
TAKE TIME FOR ACCURACY

The Knol Enterprises digital timer is an accurate, dependable unit designed primarily for advanced amateurs and professional photographers. Controls are easy to use, and time is displayed in LED read-outs which give a visible countdown. Two program wheels and a three-position range switch permit rapid programming and quick changes. Timer switch positions are 1-99 minutes in one-minute intervals, 1-9.9 minutes in .1-minute intervals and 1-99 seconds in one-second intervals. Other switch functions include relay override, start/reset and on/off. Price is \$154.95 (California residents add 6-percent sales tax) from Knol Enterprises, 200 Suburban Road, San Luis Obispo, California 93401.



SHOOTING IN THE RAIN, SNOW, SEA

The Nikonos III is unaffected by dust, sand, rain, snow, salt or fresh water. It is designed for underwater use to depths of 160 feet and can be completely submerged without special housing. The camera features a bright viewfinder with frame marks for 35mm and 80mm lenses, plus parallax correction marks. A single lever with built-in safety lock advances film, cocks shutter, operates the frame counter and releases the shutter. Additional features include a stainless steel spring-loaded bayonet mount which maintains equal pressure regardless of underwater depth and a slight negative buoyancy. The Nikonos III accepts three lenses ranging from super-wide-angle to telephoto in addition to the normal 35mm f/2.5 Nikkor lens. Accessories include a close-up outfit, underwater flashgun, filters and an underwater meter. Suggested retail price is \$390 including Nikkor lens. For further information, contact Ehrenreich Photo-Optical Industries, Inc., 623 Stewart Avenue, Garden City, New York 11530.



NEW DEVELOPMENTS IN A KODAK PACKAGE

New, easy-to-use foil-laminated paper packets containing premeasured quantities for Kodak D-76, Microdol-X, Selectol and Dektol developers and Kodak fixer are now available from the Eastman Kodak Company, 343 State Street, Rochester, New York 14650. The packages are color-coded for use with paper or film products and provide convenient storage, easy opening and simple package disposability.



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The Hansa S-635 enlarger is capable of producing both color and black-and-white prints and accepts negatives from 110 to 2 1/4 x 2 1/4. It has an optically ground, double condenser system and a filter drawer located above the negative carrier. The unit comes complete with two negative carriers—35mm and 2 1/4 x 2 1/4—and two color-corrected, click-stop lenses—50mm f/3.5 and 75mm f/3.5. Head can be swiveled 90° for wall projection. Suggested retail price is \$119.95. Contact Elmo Mfg. Corp., 32-10 57th Street, Woodside, New York 11377.

(Continued on page 30)

Please mention PhotoGraphic Magazine when inquiring to manufacturers about the items listed in "Product Proof Sheet."

New Product information should be sent to the attention of Karen Geller, Managing Editor, PhotoGraphic Magazine, 8490 Sunset Boulevard, Los Angeles, California 90069.



The Bigmouth developing tank. One of the new Vivitar darkroom accessories.

How many times have you poured chemicals into a developing tank and ended up with more on your pants than in the tank? Why? Because the wretched mouth of the tank was too small to catch the amount of liquid you were pouring. SOLUTION: Developing tanks with big mouths. Naturally, we call them BIGMOUTH.

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Then you put a print in the developing tray. Or is that the fixer? Of course, they get mixed up because they look alike in the darkroom. SOLUTION: Color code the trays so you can tell the

difference even under a safelight. Also color code the print tongs so they contrast with the trays.

We took this same sort of approach with mercury thermometers, lowly film clips, squeegees, stirring rods, even papersafes.

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When photography is more than just a hobby.



PRODUCT PROOF SHEET

(Continued from page 29)



NEW LINE OF LENS CASES FROM MARSAND

Each Marsand lens case is constructed of Ranchyde exterior and soft lint-free velvet interior that affords the ultimate in both protection and styling. Cases, from left to right, include Model D1978, 3 3/8 x 8 7/8 inches, suggested list price \$15.95; Model C1977, 3 x 6 1/2 inches, \$14.95; Model B1976, 3 x 4 1/4 inches, \$12.95 and Model A1975, 3 3/8 x 3 1/2 inches, \$11.95. Colors available include black, brown and desert tan. Contact Marsand Industries, Inc., 5150 W. Jefferson Boulevard, Los Angeles, California 90016.



FUJI INTRODUCES FUJICA POCKET 300

Fujica Pocket 300 kit includes camera, electronic flash unit, film, carrying case, batteries and strap. The camera has a Fujinon 26.5mm f/5.6 three-element, three-group lens with a built-in ultraviolet filter. Shutter is set at 1/125. The lens is fixed-focus with a range of three feet to infinity. Three exposure settings on top of camera are "sun," f/11; "hazy," f/8 and flash, f/5.6. Fujicolor Strobe P provides correct flash exposures from three to 11 feet. Its flash duration is about 1/1500 second, giving approximately 200 flashes per set of AA batteries. Flash is end-attached to eliminate red-eye. Suggested retail price of complete package is \$69.96; contact Fuji Photo Film U.S.A., Inc., 350 Fifth Avenue, New York, New York 10001, for further details.



YOU'LL HAVE IT MADE WITH A LARSON VIGNETTA SHADE

The Vignetta Shade readily snaps onto either the Hasselblad or Mamiya professional bellows lens shade to allow the use of the Leon Vignetter without undesirable flare. It is ideal for use either in the studio or outdoors where random spill light striking the vignetter could ruin a perfect picture. Weighing three ounces, the Vignetta Shade folds flat for easy storage and portability. Manufacturer's suggested retail price is \$19.95; both the Vignetta Shade and Leon Vignetter are products of Larson Enterprises, Inc., 18170 Euclid Street, Fountain Valley, California 92708.



NEW POCKET SLIDE VIEWER FROM KALT

The Kalt SV-1 pocket slide viewer has a combination of 5X optics and light source to present a 2x2-mount slide as if it were an 8x10 enlargement held 14 inches from viewer's eye. Unit is made of impact-resistant Cylolac and is pocket-size, 5½x2¼x1½ inches. Case separates for easy access to two C batteries (not included), bulb and optics. The SV-1 is a product of Kalt Corporation, 2036 Broadway, Santa Monica, California 90404; price is \$5.95.



COPAL INTRODUCES POCKET TRIPOD

The lightweight, compact Copal Mini-Tripod is designed for use with 110 cameras or as a handgrip for other cameras. It weighs under two ounces and has a suggested list price of \$5.95. Contact Copal Corporation of America, 56-01 Queens Boulevard, Woodside, New York 11377.

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Write for information on the complete Soligor Darkroom Equipment line.

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The Unlimited View has only one limitation...

The masters of photography have always needed a photographic system that would allow the full expression of their creativity. Their choice since photography's infancy has been the view camera, for in spite of the tremendous technological advances made in the field of photography since Alfred Steiglitz started taking pictures of the New York skyline through his apartment window, no system has ever been developed that can do the things a view camera is capable of doing.

The Toyo View is designed to take full advantage of the unique capabilities of large format photography. Its only limitation is your own imagination.

The Toyo system is available in five models: The D45A and D45M 4x5 view cameras, the 57M 5x7 view camera, the 810M 8x10 field camera, and the 45A 4x5 field camera.

Your own imagination



TOYO

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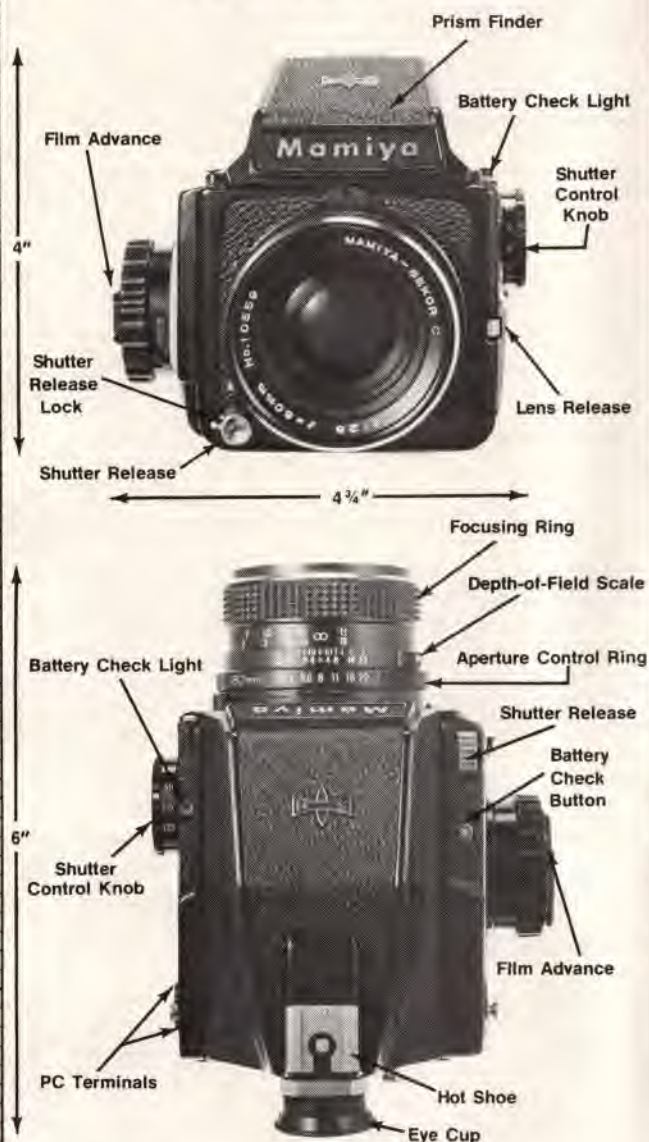
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Photographic's SPEC SHEET

MAMIYA M645



TYPE: 120/220 single-lens reflex with 6x4.5cm format

LENS MOUNT: Mamiya/Sekor bayonet

SIZE: 6 1/16" deep x 4 27/32" wide x 3 29/32" high (154mm x 122.7mm x 99.3mm) (with 80mm lens)

WEIGHT: 47.1 oz. (335g) (body with waist-level finder)

BASIC PACKAGE: Camera body only with battery, neck strap and body cap

PRICES: Body only, \$445; waist-level finder, \$65; prism finder, \$165; 80mm f/2.8 lens with hood, \$190

DISTRIBUTOR: Bell & Howell/Mamiya Company, 2201 West Howard Street, Evanston, Illinois 60202

FEATURES

Viewfinder: Waist-level finder with flip-up magnifier, eye-level or PD prism finder with photo-diode metering system and microprism viewing screen.

Shutter: Electronic focal-plane shutter with speeds from 8 seconds to 1/500, plus bulb.

Mirror: Automatic, instant-return.

Automation: None

Exposure Meter: None

Frame Counter: Additive, with automatic reset and 120/220 indicator.

Film Advance: Knob with folding crank on right side. Single 360° turn cocks shutter and advances film. Multiple-exposure capability.

Flash Synchronization: Two PC terminals for strobe and focal-plane bulbs. Electronic flash synchronized at 1/60; bulbs at all speeds.

Accessory Shoe: Hot-shoe contacts for both prism finders.

Self-Timer: None

Battery: Uses one six-volt silver-oxide battery (Eveready 544 or Mallory DX28).

Battery Check: Green light glows when battery test button is depressed.

Lenses Available: Six Mamiya/Sekor lenses available in addition to the 80mm f/2.8 normal lens include: 45mm f/2.8 and 55mm f/2.8 wide-angle lenses, 110mm f/2.8, 150mm f/4, 210mm f/4 and 500mm f/5.6 telephoto lenses. All are multicoated.

Accessories: In addition to lenses, prism finders and focusing screens, diopter correction viewfinder lenses, a right-angle viewfinder and 2X magnifier and automatic extension tubes are available. Three grips—pistol-type, regular and deluxe-side grip—three carrying cases and extra 120 and 220 magazine inserts are available.

COMMENTS

The Mamiya M645 is a radical departure from accepted practices, revealing a daring and progressive attitude on the part of the decision-makers at Mamiya. But more significantly, the camera itself is an obvious attempt to supply the photographer with a versatile and useful tool capable of high quality performance even under the heaviest use.

Combining a quality format size with light weight and quick handling features at a moderate price can only be praised. Even though some 120-film size single-lens reflex users are critical of the focal-plane shutter, the 35mm fan will appreciate the complete and lightweight line of lenses available. The whole system is compact and designed for ease of handling, making the M645 ideal for the outdoor photographer desiring maximum image quality.

Fifteen pictures per roll of 120 film, a rapid film wind and quick, easy film loading make the M645 as adept at quick-action photography as a 35mm single-lens reflex and possibly quicker than a motor-driven 120-film size single-lens reflex.

Handholding the camera without a pistol grip takes some getting used to, but after some practice this is easily overcome and minor when considering the overall desirability of this brilliantly designed system. Other camera designers would do well to follow the lead set by the creators of the M645. The camera more than encourages picture taking. If there are several cameras available from which to choose, one does not hesitate to pick the M645.

Photographic's SPEC SHEET

ASAHI PENTAX KX



TYPE: 35mm single-lens reflex

LENS MOUNT: Asahi Pentax K bayonet

SIZE: 5 1/2" long x 3 1/2" high x 1 1/4" deep (143mm x 91.4mm x 32mm) (body only)

WEIGHT: 22.1 oz. (631g) (body only)

BASIC PACKAGE: Camera body, batteries, body cap

PRICES: Chrome body only, \$319.25; black body only, \$344.25; 50mm f/1.4 lens, \$179.25; 55mm f/1.8 lens, \$112.50; add \$30 for soft case

DISTRIBUTOR: Honeywell, Inc., Photographic Products Division, P.O. Box 1010, Littleton, Colorado 80120

FEATURES

Viewfinder: Nonremovable pentaprism with microprism (chrome body) or split-image focusing screen (black body). Aperture setting visible at top center of screen; shutter speeds located on right side of focusing screens, indicated by a blue needle.

Shutter: Horizontally run, focal-plane type, with

speeds from 1 second to 1/1000, plus B. Shutter release on top of body with locking device.

Mirror: Automatic, instant-return type with mirror lock-up located on side of depth-of-field preview.

Automation: None

Exposure Meter: Silicon-photo-diode meter measuring center area of screen at full aperture; ASA range 8-6400.

Frame Counter: Additive, automatic resetting.

Film Advance: Ratchet-type with option of single or multiple stroke, 160° throw, 20° standoff.

Flash Synchronization: Hot shoe connects to electronic flash synchronization. Separate contacts for PC cords in front of the camera body; X synchronization at 1/60.

Accessory Shoe: Built-in, located atop pentaprism, with X synch.

Self-Timer: Built-in with interrupt function, 5-13 second delay.

Battery: Uses two silver-oxide batteries, Eveready 576E, Mallory MD76H or equivalent.

Battery Check: Button located between rewind and pentaprism functions through meter needle movement. If meter needle drops to 125 or lower, batteries are working.

Lenses Available: A complete line of 26 new, Super-Multi-Coated Pentax bayonet K-mount from a 17mm f/4 fisheye to a 1000mm, preset, f/8 telephoto, with special purpose and zoom lenses also available.

Accessories: Most Takumar screw-mount lenses and accessories are adaptable by means of a special K-mount accessory. A full range of new K-series accessories is available, including bellows, slide copier, extension tubes, microscope adapter, reverse ring, 52-49mm adapter rings, filters, K adapter for 6x7, etc.

COMMENTS

The Asahi Pentax KX is a compact, lightweight camera with conventional 35mm single-lens reflex configuration. Logic and consideration of the photographer's needs have been major elements in the camera's design. All controls are easy to reach and identify by touch. All settings are very conveniently placed and easy to read.

The new bayonet mount allows quick and positive changes of lenses. But most important, the large bayonet body opening will allow optical engineers at Asahi more room to design much faster, long and very short lenses than was possible with the Takumar series. In addition, such a large bayonet should maintain a solid, positive location of the lenses long after a lesser mount would loosen from wear.

The image in the viewfinder is exceptionally clear and bright, with the aperture and shutter speeds clearly visible but not distractingly so. The unusually large ring of matte area in the screen is a distinct advantage and should make focusing long telephoto lenses especially easy.

General construction appears to be of the highest order of precision. The light weight of the camera is seemingly not at the expense of durability, as all working parts function with a distinct feeling of solidity and smoothness.

The Asahi Pentax KX, falling in the moderate-price field, is truly exceptional, considering quality and design features and the fact that it is part of a fully compatible system of fine lenses and accessories.

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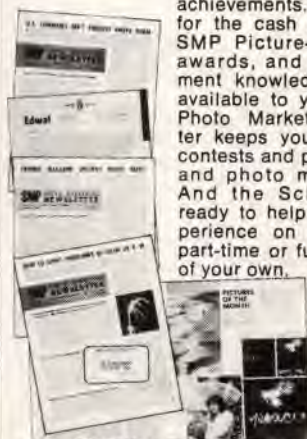
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Trendsetters:



There is a world-wide trend to more rational design. Mercedes-Benz set the trend in automobiles. Now, other manufacturers are following.

In 35mm SLR systems, Olympus OM-1 is leading the way to smaller, lighter, quieter cameras. As the publisher of Modern Photography Magazine wrote...

"...the Olympus OM-1 has precipitated an entirely new direction in camera design and manufacture."

Olympus worked for five years to create the OM-1. Today, two years after its introduction in the United States, some of the most respected names in 35mm camera manufacture have started to follow the Olympus lead.

What is it about the OM-1 that has caused the industry to rethink its basic concepts? The most immediate-



ly obvious point of difference is the 35% smaller and lighter body of the OM-1. But that's only a small part of the OM-1's departure from conventional design. The OM-1 is a trendsetter because of the many features that make it a better camera for the photographer who uses a full system of 35mm SLR photography.

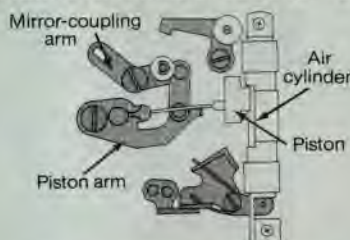
For example, although the OM-1 is about 35% smaller and lighter than the average 35mm SLR, many of its parts are actually larger and stronger than the equivalent parts on conventional cameras.



The body flange is not only massive, it's machined from 18.8 nickel chromium steel, an extremely hard, temperature-stable, and expensive alloy. The mirror, mirror box, pentaprism, and even the rewind knob are "oversize" compared to most 35mm SLRs. We built the OM-1 to survive the roughest use and the most hostile environments. We also built it to take five-frame-per-second motor drive

operation in stride, something that most SLRs can't tolerate.

Then, when the first production models came off the line, we tested them by cycling the film advance and shutter release 100,000 times in temperature extremes of 50°C to -20°C.



The OM-1 has the most sophisticated noise and shock suppression system. The shutter construction has four ball bearing trains to smooth its action. The curtain drum is of a special lightweight material to reduce noise. Shock absorbers are fitted to more than twenty critical points throughout the camera. A unique air damper system reduces shock in the mirror group. The OM-1 is much quieter than other SLRs, even in motor drive operation. And the reduction of shock makes it possible to successfully hand hold the OM-1 at slower shutter speeds.



OM-1 Ordinary SLR

The area of the OM-1 viewfinder is 30% larger than conventional SLR viewfinders, and shows you 97% of the actual picture area. In addition, the image brightness is 70% greater than average, thanks to silver coating on the pentaprism and special multi-coating on the mirror to keep light loss to a minimum. A large mirror prevents image cut-out with long telephoto lenses. The mirror box section has serrated baffling and is coated with a special anti-reflection material to reduce internal flare.



In a true system camera like the OM-1 interchangeable focusing screens are a must. Conventional

practice calls for a removable prism, with attendant problems of weight, complexity, and the intrusion of dust and dirt into the viewing system. But in the OM-1 system, focusing screens are changed through the front of the camera quickly and effortlessly.

Another prerequisite for a genuine 35mm system of photography is motor drive. Motor drives are usually heavy and bulky. But the OM-1 with motor drive is the world's smallest and lightest motor driven 35mm SLR. Capable of single frame or sequential operation to five-frames-per-second, the OM motor drive unit with OM-1 body and standard lens weighs less than some other motor drive units weigh without camera and lens. The



entire motor and battery assembly can be attached or separated from the OM-1 body in a very few seconds.

Among the over two hundred accessories designed specifically for the OM-1 are 27 Olympus Zuiko lenses from an 8mm fisheye to a 1000mm supertelephoto. These lenses share the OM-1 design philosophy of the lighter and smaller the better.

75-150mm zoom 16mm fisheye



These are some of the unique features of the OM-1 system of 35mm SLR photography. Our enthusiasm for them must be shared by a great many photographers, amateur and professional, because Olympus dealers are hard put to keep the OM-1 in stock. Please be patient, you won't have to wait more than a short time to get your hands on the OM-1. It's just something you have to put up with when you're tracking down a trendsetter.

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NIFTY, THRIFTY BACKGROUNDS

□ A photogenic subject's appeal can always be enhanced by a flattering environment. Very often, though, we are driven indoors by the elements and are deprived of the perfect backgrounds with which nature abounds. Beyond the too easily overused seamless paper background is the excitement that only imagination and resourcefulness can provide.

The history of creative endeavors is filled with works of art inspired and stimulated by the ingenuity of fellow workers in related fields. We as photographers would do well to follow such examples. For instance, the window dresser, in an effort to capture our attention, must create from his/her imagination an environment that will enhance the desirability of the displayed products. The materials with which the window dresser works visual magic are equally available to the photographer.

Practical considerations make the window dresser a particularly appropriate subject for inspirational study. Store windows and displays must be changed with the seasons; so the materials used to create them must be easy to work with, flexible and adaptable to many situations and, above all, inexpensive enough to be thrown out when their usefulness is over.

Window shopping need not be the only eye-opener to inspiration. Once the desire to seek resources is stimulated, the riches within arm's reach may very well keep one busy for some time. Unfortunately, we are most prone to overlook the mundane. Breaking the so-called rules, going against the grain and ignoring the conventional will provide a wealth of exciting picture-making adventures.

One material used by window dressers that might be rejected out of hand is vinyl plastic sheeting. Its extremely shiny, patent leatherlike surface conjures up visions of reflections of the light source and the surroundings—distracting elements that could detract from the subject. But that shiny quality and reflections can add to a picture if used intentionally. The overall flat color of the vinyl causes irregularly shaped highlights and shadows, flattering the right subject and making a total effect that's more interesting to the viewer.

The window dresser leads the photographer to a host of other materials in addition to vinyl plastic. Almost any large city will very likely have a supply

house stocked with useful materials. If a listing cannot be found in the *Yellow Pages*, a call to a local department store should elicit the information you will need.

While you are browsing the supply house, you may also want to explore some of the other shiny materials besides "wet-look" vinyl plastic. Mylar mirror comes in smooth and textured surfaces; matte silver-appearing aluminum foil on a heavy paper support is also available in roll stock. You may also find sheets of cork, colored corrugated board in rolls, rolls of colored cellophane gel and a multitude of printed patterns on roll paper stock. Many art display supply firms also carry a large variety of materials that can be used to dress a setup—artificial flowers and autumn colored leaves, even classic Greek pedestals made of molded plastic or papier-mâché. Many of these materials and similar resources can also be found in hobby shops.

An even more common source of background materials is the local home-decorating shop. Very often, odd rolls of wallpaper are put on sale. Modern prepasted wallpaper requires only some water to make it applicable to any flat surface, so it's very easy to use for a background. Many lumber suppliers have seconds of either plywood or fiberboard sheets at very reasonable prices that make excellent supports for wallpaper at a nominal cost. If a lighter weight, easier to handle material for support is desirable, Foam-Core, a plastic foam material with paper covering the surface, is available in various sized sheets from the larger display arts suppliers.

While at the home-decorating store don't overlook paint. If you have a talent for applying color, the newer water-base paints are so quick drying and easy to use that it's possible to create a painted background of many hues in just a few hours. If your mastery of paint application doesn't go beyond a roller, there are still many options open. The new water-base, semigloss enamel paints, when applied to a textured surface (such as rough concrete floor), can be photographed to make an intriguing background for a subject. Again, if a floor or wall is not available, any of the flat, supporting surfaces like plywood, fiberboard and Foam-Core can be used.

A textured surface can be added by mixing finely torn-up newspaper, white glue and water and apply-

by david brooks

it's not just what's up front that counts







ALL PHOTOS BY THE AUTHOR.



1. BACKGROUND: Self-sticking plastic wallpaper.
CAMERA: Canon F-1 with a Canon 24mm f/2.8 lens.
FILM: Kodak Kodachrome 25.
LIGHTING: Larson Reflectasol 72-inch Hexagon umbrella with Balcar strobe.

2. BACKGROUND: Rear-projected shadow pattern with translucent material.
CAMERA: Mamiya M645 with Mamiya 80mm f/2.8 lens.
FILM: Kodak Ektachrome-X.
LIGHTING: Reflectasol 72-inch Hexagon umbrella with Balcar strobe power, using one head in the umbrella and one on background from rear.

3. BACKGROUND: Vinyl "wet-look" plastic sheet.
CAMERA: Mamiya M645 with Mamiya 80mm f/2.8 lens.
FILM: Ektachrome-X.
LIGHTING: Reflectasol 72-inch Hexagon umbrella with Balcar strobe.

4. BACKGROUND: Plastic imitation brick sprayed with "wet-look" aerosol paint.
CAMERA: Canon F-1 with a Canon 100mm f/2.8 lens.
FILM: Kodachrome 25.
LIGHTING: Balcar strobe, one head with yellow gel behind model on background and one head in a Reflectasol 72-inch Hexagon umbrella from the side.

5. BACKGROUND: Painter's drop cloth.
CAMERA: Canon F-1 with a Canon 50mm f/1.4 lens.
FILM: Kodak Kodachrome II.
LIGHTING: "Tower of Power" softlight with Norman 300-watt-second strobe.

6. BACKGROUND: Rugs and other floor coverings.
CAMERA: Canon F-1 with a Canon 24mm f/2.8 lens.
FILM: Kodak Ektachrome MS.
LIGHTING: Reflectasol 72-inch Hexagon umbrella with Balcar strobe.

7. BACKGROUND: Semigloss painted wall and floor.
CAMERA: Canon F-1 with a Canon 24mm f/2.8 lens.
FILM: Kodachrome 25.
LIGHTING: Reflectasol 72-inch Hexagon umbrella with Balcar strobe.

BACK- GROUNDS

ing it to the surface of the support. A variety of textures can be created in this manner with very little practice. Cover the textured surface with water-base paint, and you have the look of a stucco wall, rough plaster or even a simulated rock wall.

When thinking about backgrounds, you naturally direct your eyes toward walls. Try casting your eyes downward instead. Floors are often covered and decorated with rugs, which come in interesting textures, patterns and colors. An arrangement of throw rugs can make a fascinating background. A striking checkerboard could be set up on the floor using two colors of carpet tiles. If your subject doesn't like the idea of lying prone to be photographed, consider hanging an area rug against a wall much like a seamless paper background.

What to do with a remainder of seamless paper background too short to hang up is always a problem. Why not lay it out on the floor to act as part of a background for a lazy subject who likes to lie down on the job? Texture can be added to the paper by covering it with a crumpled sheet of insulation plastic. Odds and ends of leftover water-base paints could be roughly brushed on with an old broom to create a bold abstract environment for the subject.

While on the subject of paint, don't ignore the cast-offs of the house painter. When his drop cloths become too dirty and paint-laden for him to use, they may contain abstract patterns that could never be intentionally duplicated. Old drop cloths, or even stained tarpaulins, can become exciting juxtapositions to a daintily attired model.

Cloth material need not be soiled and used to be an effective background. A local yardage shop should have enough fabric selections to keep the most ambitious photographer busy for a long time. An advantage to using yardage as background is that it is usually translucent to some degree, allowing it to be lit from behind. The photographer then has the option of moving the subject close to the background, while eliminating shadows on the background cast by light on the subject. In addition, light from behind the cloth can be feathered or vignetted

and colored with gels placed over the light source to contrast with the material's color.

Plain white cloth, thin white paper or drafting Mylar can also be used as a background that is backlit. Again, color can be introduced by gels over the background light. A shadow image pattern can be cast on the background by placing an object between the background and the light shining on the background. The closer the object is to the background, the more sharply the shadow will be defined. Small branches of trees work well for this purpose as does latticework or an old window frame without the glass. A two-dimensional effect can be created by putting a window or door frame in front of the background with the shadow of a tree branch projected from behind.

Plexiglas is one of the more interesting and versatile backgrounds for small subjects, including close-up portraits, products and still lifes. It is relatively expensive but more durable if properly cared for than most other background materials. One of the more intriguing varieties of Plexiglas is smooth-surfaced black Lucite which can act as both support and background for product photography. Using it in this manner, the picture can also include subtle or distinct reflections. Reflection variations can be further explored with Plexiglas mirror, which comes in a number of colors.

Shiny textured backgrounds can be made by spraying a surface with one of the several brands of "wet-look" paint, available in aerosol cans. Other useful backgrounds are the brick and stone-wall textures that can be made with the inexpensive stick-on plastic molded panels sold at many paint stores. The panels are easily applied to any flat surface and can be covered with one or two cans of spray paint.

The effectiveness of many backgrounds, especially the shiny ones, will depend on how they and the subject are lighted. Simple lighting will afford the greatest control and in most instances be the most pleasing. For illustrations shown here, the main light on the subject was limited to a single strobe bounced from a Larson Reflectasol 72-inch Hexagon umbrella. This broad source is most flattering to the model and also reduces harshness of shadows cast on the backgrounds.

With many of the shiny backgrounds the umbrella light was directly over camera position, shining straight onto both subject and background equally, deliberately creating reflections of the light source in the background. In

some cases the shininess of the background was enhanced by sidelighting the subject and screening the main light from the background. Then a second light source was hidden behind the subject and directed onto the background. Usually the background light had a colored gel over it to contrast with the colors of the model's attire and further accent them.

With projected shadows and a back-lighted translucent background, the main light on the subject must *not* fall on the background, or color and shadow image will wash out.

Either strobe or tungsten light will work equally well, though strobe allows the photographer more movement when working with a live subject. It is advisable and infinitely easier to work with strobes that have modeling lights, so you can see the effect you are creating. If your strobe lacks a built-in modeling light, a 150-watt reflector flood placed parallel and adjacent to the strobe head will function quite well.

Studio strobes allow one or more heads to be plugged in to light the background in conjunction with the main light. Portable strobe units can be used together by using a slave-triggering device on the second unit. If a second strobe is not available, a photo-flood will work. When combining tungsten for the background and strobe on the subject, the shutter speed will have to be adjusted—usually lower than normal to balance the exposure of the background to the strobe light on the subject. You should also keep in mind that tungsten on the background will produce a warmer light. If that warmth is undesirable, then a blue photo-flood should be used.

Virtually all of the materials suggested for backgrounds will be equally effective with black-and-white photography and in some cases even more strikingly so. When working in black-and-white, though, it is an advantage to use background materials that are neutral in color. Strong colors can easily mislead you when you're attempting to evaluate relative tone values in black-and-white.

With a few rare exceptions, all of the backgrounds used here were less costly than seamless paper, and in many cases their durability factor was considerably greater. And if your concerns go beyond mere monetary considerations to a regard for the environment and our diminishing resources, then the choices and the search for new ideas can be doubly edifying when you realize that seamless background paper isn't the *only* option available. □

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SOLVING THE GIFT PUZZLE

Piece Together Your
Favorite Photos

By Jim Hendrickson

Are you looking for a unique gift idea that won't set you back a fortune, yet causes the recipient to remember happy events in the past? Chances are, the solution to this problem is no further away than your negative file. Photos of friends, relatives or landscapes can be easily turned into photo jigsaw puzzles of your own design. The process will work equally well on color or black-and-white prints and requires little investment in tools and supplies.

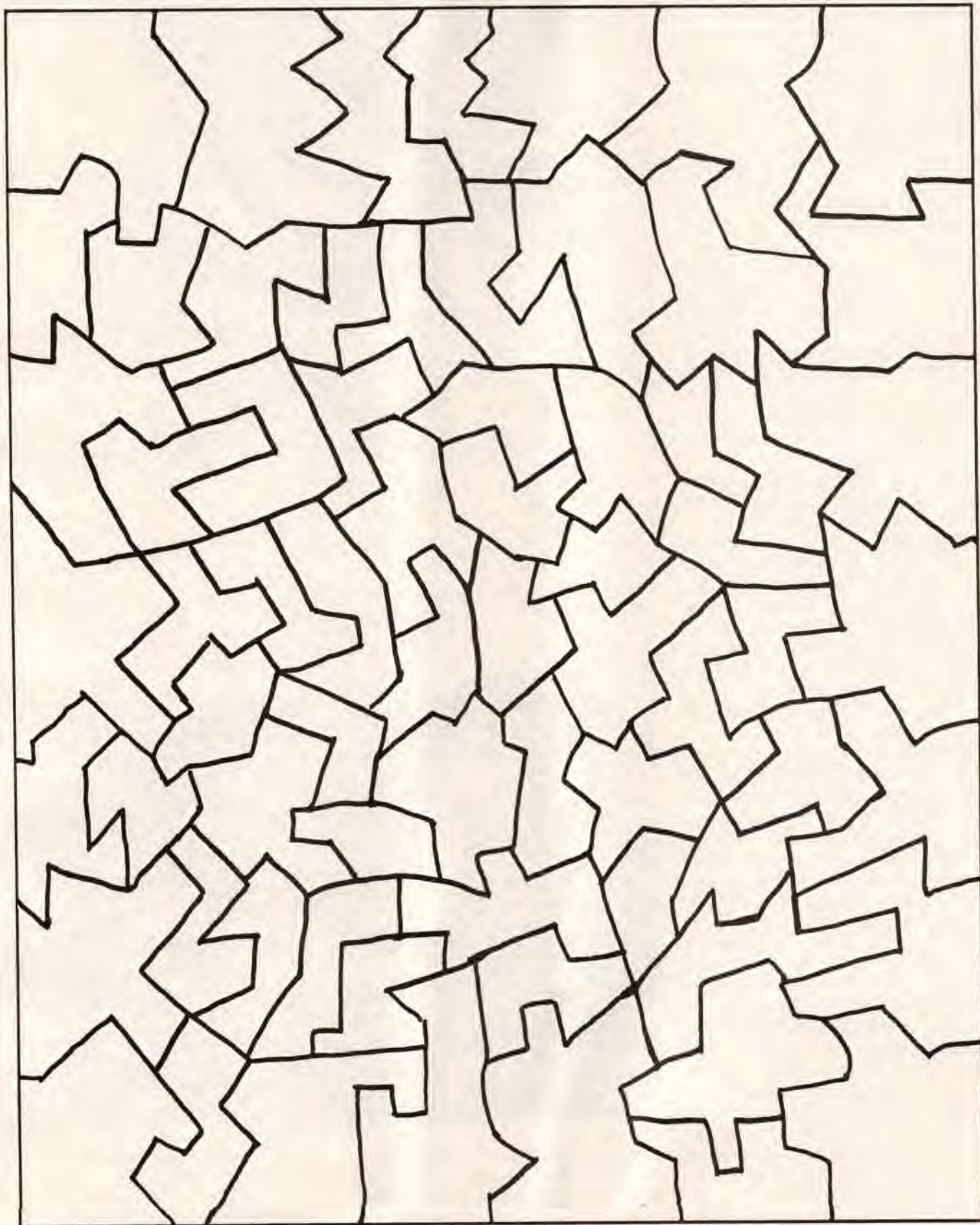
In fact, all that is needed are a utility knife and blades, rubber cement, a metal straightedge and, of course, a mounted print. Add to this a little patience, and before long, you will be turning out puzzles that will baffle even jigsaw experts.

Begin by mounting your print on standard mount board using your normal procedure. Allow a border of at least one inch on all sides. The reason will become obvious later. Use any thickness of mount board you prefer, but remember, although thinner mount board is easier to cut, it makes the finished puzzle weaker. Extremely thick mount board, on the other hand, is difficult to cut smoothly.

After you have mounted the print, make a Xerox or other copy of the pattern that accompanies this article. If your print is 8x10 inches, then you have no problems. If not, alter the pattern to exactly fit your print size. Cement the edge of the pattern to the border around the print as shown in the accompanying illustrations. Be sure to align it carefully to obtain a neat puzzle with straight borders. It's best to attach the pattern to the face of the print, since cutting from the top tends to round the edges of the puzzle pieces and protects the emulsion from chipping.

Once the pattern is secured to the picture, the actual cutting can begin. Using the utility knife, start cutting in the middle of the picture so that the final cuts around the border will be done last. An extra piece of mount board or other suitable material should be placed under the work to protect the table or working surface from cuts.

A photocopy of this pattern will make a useful guide for cutting the pieces of your photo jigsaw puzzle.



GIFT PUZZLE

Practice on some scraps of mount board before beginning to cut the actual puzzle. This way the necessary cutting pressure can be determined. If an extra-heavy mount board is used for the puzzle, it is better to make a preliminary cut and then follow it up with a second cut if necessary. This way, a smoother cut can be obtained. The metal straightedge can be used as a guide for cutting, but with a little practice, most of the work can be done freehand.

When all the cutting has been done between the pieces, it's time to trim the puzzle. Using the straightedge as a guide, trim the borders of the mount board. It's better to trim the final puzzle to a size slightly smaller than the original print so that you can be sure to avoid a white border caused by excess mount board. When this step is finished, the puzzle is actually finished. Puzzle pieces, however, have a tendency to get lost if not kept together in a box of some sort.

When you find a suitable box, make a copy of the photograph used for the puzzle and mount the print on the box to identify the contents. Rubber cement or one of the commercial spray adhesives can be used to attach the print.

If small white lines appear when the finished puzzle is put together, darken the offending areas with a felt-tip marker or a soft lead pencil. The lines are most often caused by using a heavy knife blade to cut with or by unsteady cutting motion.

Although every puzzle could be made from the same pattern, you will eventually want to try more complicated patterns. To construct your own pattern, begin with a square, rectangle or circle the shape and size of the print you wish to use. Divide the pattern into approximately equal areas to make the pieces.

Begin in one corner and draw the pieces along the border first. Slowly work toward the middle until completed. When designing the pieces, remember that they must interlock to form the puzzle effect. Small, thin arms on pieces should be avoided since they tend to bend and tear easily. While straight lines are the easiest with which to work, even the more difficult rounded locking jigsaw pieces are possible to design and cut out with practice and patience.

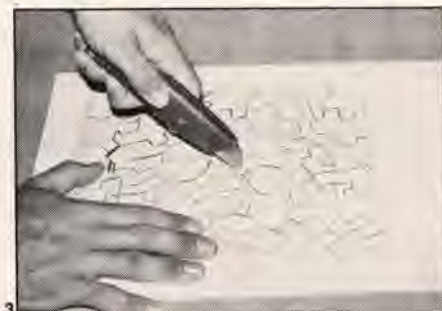
While this process might not cause



ALL PHOTOS BY THE AUTHOR.

the major jigsaw puzzle manufacturers to fold, it does provide an interesting alternative to the customary subject matter of commercial puzzles. Best of

all, your photo jigsaw puzzle can be your own creation, from start to finish. Isn't it time to do something *really* unique with your favorite images? □



1. All you need to turn a favorite photograph into a photo jigsaw puzzle are a mounted print, rubber cement, a straightedge, mount board and utility knife.

2. To attach pattern to print, apply a small amount of rubber cement to mount board, then align sides of pattern and print. Attach at one side and then pull gently toward the other side before cementing it to assure a smooth, tight pattern to cut by. Avoid using too much cement, since it might spread onto the print and ruin it.

3. Using the utility knife, start cutting in the center of the photo. Begin at an intersection of two lines to obtain smooth corners. A firm, steady stroke with the knife makes the most even cut.

4. Continue cutting piece by piece until you reach the edge. Be sure to use a sharp blade at all times. If the cuts begin to look ragged or if the board becomes difficult to cut, change the blade.

5. When all pieces are cut, remove the scraps of paper from around the border. Using the straightedge as a guide, carefully cut out the picture. Be sure to apply plenty of pressure to the straightedge while cutting to prevent it from slipping.



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Technical Index Data Sheet

By Parry C. Yob

Processing Times for Kodak Films in Ilford's Microphen Developer and Substitute Formulary

Microphen developer is a proprietary formulation of Ilford, Ltd., and is based on the chemical Phenidone, which is the trade name for 1-phenyl-3-pyrazolidone, discovered by the Ilford laboratories in 1940 as a substitute for Metol. Like Metol, it possesses the rather unique property of being a synergistic activator for hydroquinone, but far smaller amounts of Phenidone are required in developer formulations. Because Phenidone developers characteristically yield high emulsion speeds (ASA values), Microphen gives slightly higher than normal ASA numbers in the tests reported here.

When developed in Microphen, both undiluted and diluted 1:3 with water, Plus-X film gave the most brilliant negatives, with Tri-X giving the least brilliant and Panatomic-X falling between. All, however, were completely satisfactory.

DEVELOPMENT TIME AT 70°F. IN FULL-STRENGTH MICROPHEN WITH KODAK FILMS

FILM	ASA	TIME MINUTES*	ROLL TYPE
Pan-X	64	4	35mm
Plus-X	200	5	35mm
Plus-X	200	5	120
Tri-X	600	5	35mm
Tri-X	600	5	120
Tri-X Pro	500	5 1/4	120 & 220

REPLENISHMENT

Microphen replenisher is available, and the replenishment rate is 1/2 ounce per square foot of film or about 1/3 ounce for a 36-exposure roll of 35mm film or one 120 roll film.

DEVELOPMENT TIME AT 70°F. IN MICROPHEN DILUTED 1 PART DEVELOPER TO 3 PARTS WATER (1:3)

FILM	ASA	TIME MINUTES*	ROLL TYPE
Pan-X	50	8	35mm
Plus-X	125	10	35mm
Plus-X	125	10	120
Tri-X	400	10	35mm
Tri-X	400	10	120
Tri-X Pro	320	11	120 & 220

*Continuous agitation for the first 45 seconds, including pouring time, then 15 seconds rest, followed by five seconds agitation every 30 seconds for remainder of development time.

Although the following formula gives results quite similar to Microphen, it is not an official formula. However, it may be used with the times and temperatures given above. When mixing the developer and the replenisher, photograde chemicals should be used throughout. It is also advised that distilled or deionized water be used.

SUBSTITUTE FORMULA FOR MICROPHEN DEVELOPER

Developer	Metric	Avoir.
Water	750ml	24 oz.
Sodium sulfite (dessicated)	100g	1460 gr.
Hydroquinone	5g	73 gr.
Borax	3g	44 gr.
Boric acid	3.5g	51 gr.
Potassium bromide	1g	14.6 gr.
Phenidone	0.2g	2.92 gr.
Water to make	1000ml	32 oz.

SUBSTITUTE FORMULA FOR MICROPHEN REPLENISHER

Developer	Metric	Avoir.
Water	750ml	24 oz.
Sodium sulfite (dessicated)	100g	1460 gr.
Hydroquinone	.8g	117 gr.
Borax	.9g	131 gr.
Boric acid	1g	14.6 gr.
Phenidone	0.24g	3.5 gr.
Water to make	1000ml	32 oz.



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All photos made with Nikon, Nikkor 24mm or 105mm lenses and Kodak Tri-X Film processed in Kodak D-76 developer. Exposures, by through-the-lens meter, were unrecorded.









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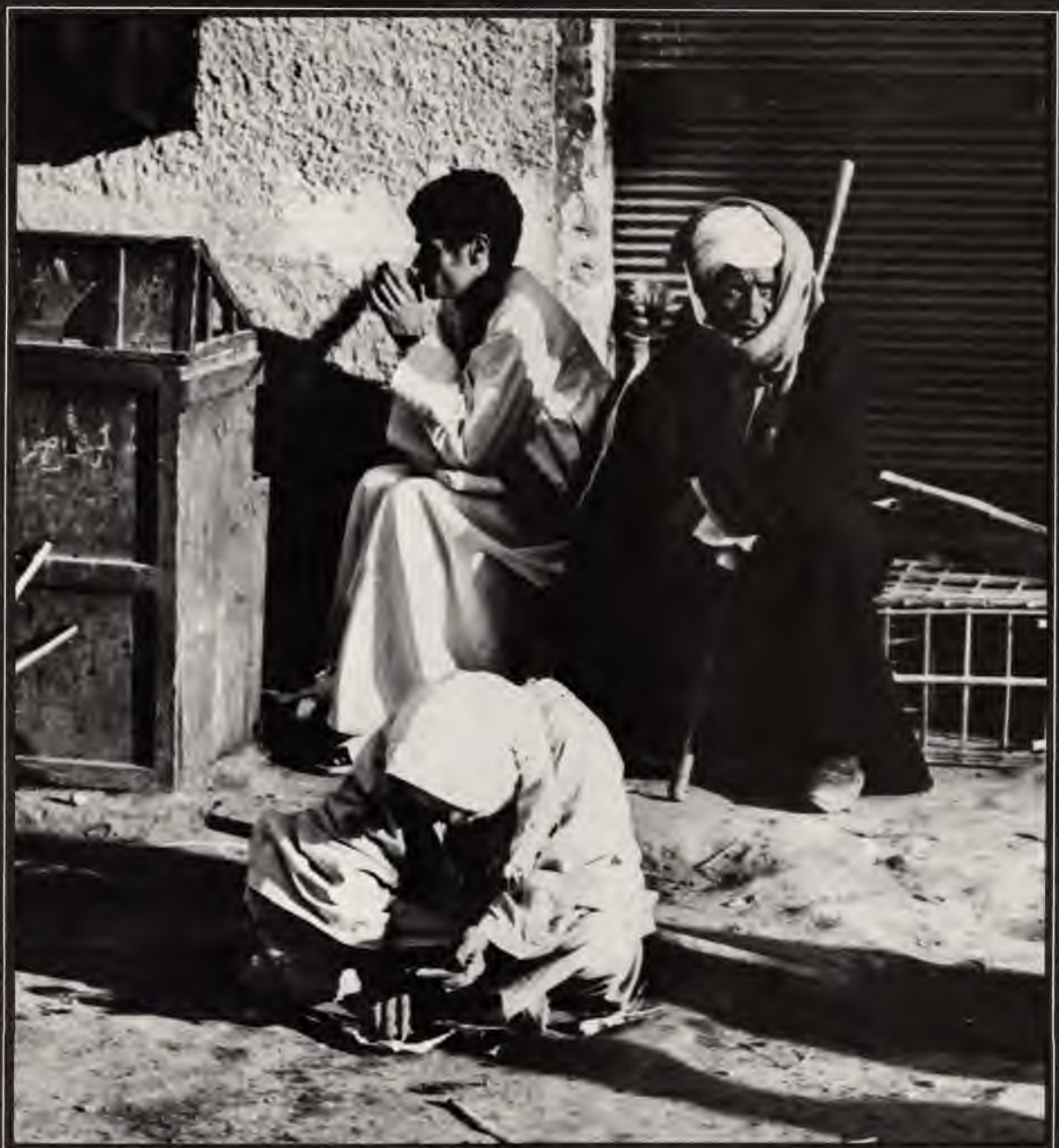


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If you belong to that rapidly expanding breed of photographers whose interest in film processing and printing is tying up the bathtub or laundry room sink for more than just a few hours on the weekend; if you find your progeny loving you more since your avocation has become their excuse for no bath on Saturday night, Sunday afternoon or even Monday morning; if you've taken over the laundry facilities to the point where you're out of clean socks (and developing a great affinity for sandals and bare feet), then it's high time you found a new puddle to play in.

My own darkroom career began in a humble, and damp, fruit cellar. I processed my prints on a folding, metal picnic table which has long since gone down the rusty trail. How demeaning it must have been for my prints to have been washed in the same laundry sink which had recently served my tennis socks and sweaty T-shirts! Yes, the setup was workable, alright, but how I *longed* for my very own sink.

Darkroom sinks are costly, and custom-built sinks are usually in the out-of-sight price range. But everyone who's ever investigated these items knows of what I speak. Why else would you trade family tranquility and bathtub ring for a place to put four processing trays? So in order to insure the peace of mind necessary for creative and productive darkroom sessions, I've come up with an inexpensive, custom-made darkroom sink which I guarantee will reinstate you back to a more dignified position—both in mind and family hierarchy.

All you'll need are a couple of evenings to construct the sink and some

plumbing the depths

or, how to build
a darkroom sink

by walt seng

darkroom sink

easily accessible materials. Best of all, you can forget about the gooey resins that might have initially kept you from a project like this one. Imperial Zar varnish is an exterior marine-type sealant that works like regular varnish and does an excellent job of waterproofing wood. It is clear and allows the natural wood grain to show through.

MATERIALS

Have your local lumberyard cut two sheets of $\frac{3}{4}$ -inch plywood to the dimensions specified in diagrams No. 1 and 2. The pieces will make a sink $61\frac{1}{2}$ inches long, $25\frac{1}{2}$ inches wide and about 11 inches deep. The splashguard will extend about 24 inches above the top edge of the sink basin. Of course, you should modify these dimensions as your space requirements dictate. If you can afford it, purchase grade AA plywood (good on both sides). If not, grade AD will do the job nicely, as long as you remember to use the higher grade A side for the sink basin's interior.

In addition to the cut wood, there are some other items and materials which you should gather before beginning the actual construction: 1. white glue; 2. approximately 60 $1\frac{1}{4}$ -inch wood screws; 3. three eight-inch shelf brackets with $\frac{3}{4}$ -inch screws; 4. wire nails; 5. sixpenny finishing nails; 6. eightpenny common nails; 7. Imperial Zar varnish; 8. fine sandpaper; 9. ham-

1. Sides are affixed to splashguard with glue and five $1\frac{1}{4}$ -inch wood screws. Before using screws, boards are held in place with two sixpenny finishing nails. Sink bottom is attached in same manner. Note $\frac{3}{4}$ -inch recess of bottom in relation to sides.

2. Front panel of sink is attached with glue and screws. Note position of screws and spacing—about six inches.

3. Draw outline of rim of strainer with pencil or marker. It should be centered and no closer than three inches from side of sink.

4. Cut $3\frac{1}{2}$ -inch diameter hole with saber-saw to accommodate strainer.

5. With hammer and chisel strip away top layer of wood between enscribed circle and drain hole. This way, rim of drain will lie flush with sink basin for complete drainage.

6. Strainer should fit neatly into hole.

7. Wood strip, approximately 11 inches long, is tacked and glued to back to act as support for accessory shelf.

8. Accessory shelf positioned on sink. Shelf should be varnished along with sink.

9. Sink with accessory and equipment shelves. Shelf brackets are positioned about six inches from top of splashguard and fastened with $\frac{3}{4}$ -inch screws. Shelf can be fastened either before or after varnishing.

10. A $1\frac{1}{2}$ -inch copper or plastic pipe can be used to control water level when using sink as water jacket (see text for details).



mer; 10. wood chisel; 11. electric screwdriver; 12. electric drill; 13. saber-saw; 14. 3½-inch drain strainer; 15. laundry faucets; 16. plumber's putty; 17. 2x4s for sink stand and some 1x2s if you want to build a drain rack.

CONSTRUCTION

All seams should be well-mated, since water tends to seep through holes and cracks. First stand the splashguard (or back) of the sink on its long end and affix the two short sides of the sink to it (see photo No. 1 for proper placement). Glue the ends first and tack into place with two sixpenny nails; then set about five screws through the back and into the side panels. Care should be taken to center the screws properly so that they do not split the wood. You'll probably find it necessary to make starter holes with the appropriate size drill bit. After the screws have been set securely, wipe the excess glue from the seams.

Before attaching the front panel, the bottom of the sink should be installed (as seen in photo No. 1). The bottom is recessed about ¾ inch from the lower edge of the sides so that the screws will not fall too close to the edges of the side panels. Lay the wood for the bottom of the sink on pieces of ¾-inch thick plywood, and then put it into place within the already assembled back and sides. Affix with glue and screws. Put the front panel into place and secure (see photo No. 2).

Next cut a 3½-inch diameter hole at one end of the sink. It can be centered between front and back panels and at least three inches from the side panel. Put the strainer into the hole and mark the outline of the lip with a pencil. Using a wood chisel, chip away the top layer of plywood within the outline, (see photos No. 3 to 6). This will allow the strainer to lie flush with the wood for better water drainage. Install the drain after the sink has been varnished—this will seal the wood around the drain. (Remember to pack lots of plumber's putty between the wood and strainer.)

Construct the legs by nailing together some 2x4s as shown in diagram No. 3; I use eightpenny nails for this purpose. Making the legs on the drain side of the sink about one-inch shorter than at the other end will facilitate water drainage. The plumber's rule-of-thumb is a ¼-inch drop per linear foot. Of course, the overall height of the sink should be determined by what is comfortable for you. The top of the sink should rest freely on the legs.

Attach the shelf to the splashguard

using the three shelf brackets. The shelf should be placed about six inches down from the top of the splashguard. The shelf will hold your chemicals and processing tanks (see photo No. 7).

The sink construction should now be complete. Before varnishing, countersink the screws and fill with plastic wood or cover them with wood trim for a professional-looking finish. Then varnish according to instructions on can.

Install the faucets wherever they will be most convenient for your purposes. You can cut a port in the splashguard to accommodate them. A couple of faucets are handier than one (see photo page 62).

ACCESSORIES

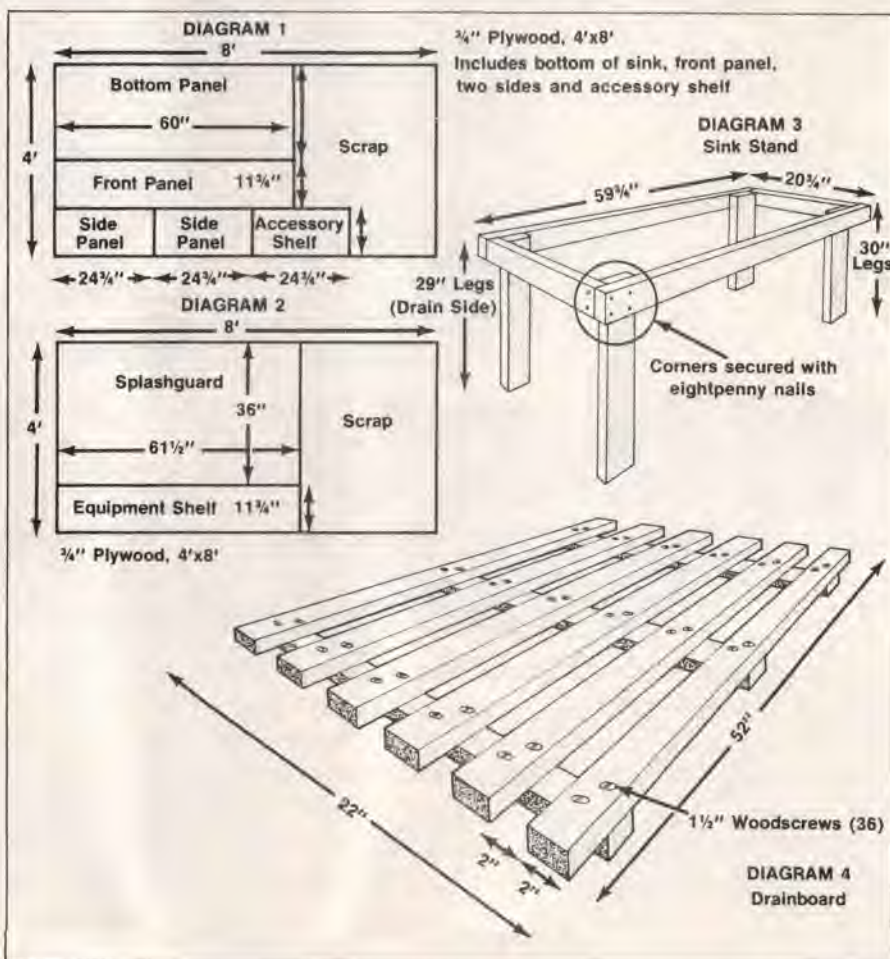
If by now the building bug has really bitten you, you might be interested in constructing an additional accessory that will protect your custom sink from abrasion and nicks as well as allowing more water to come in contact with your developing tanks when you use the sink as a water jacket for temperature control. A drain board can be easily constructed using a few 1x2s (see diagram No. 4). Coat the wood thoroughly with varnish and complete the drainboard with rubber-tipped feet

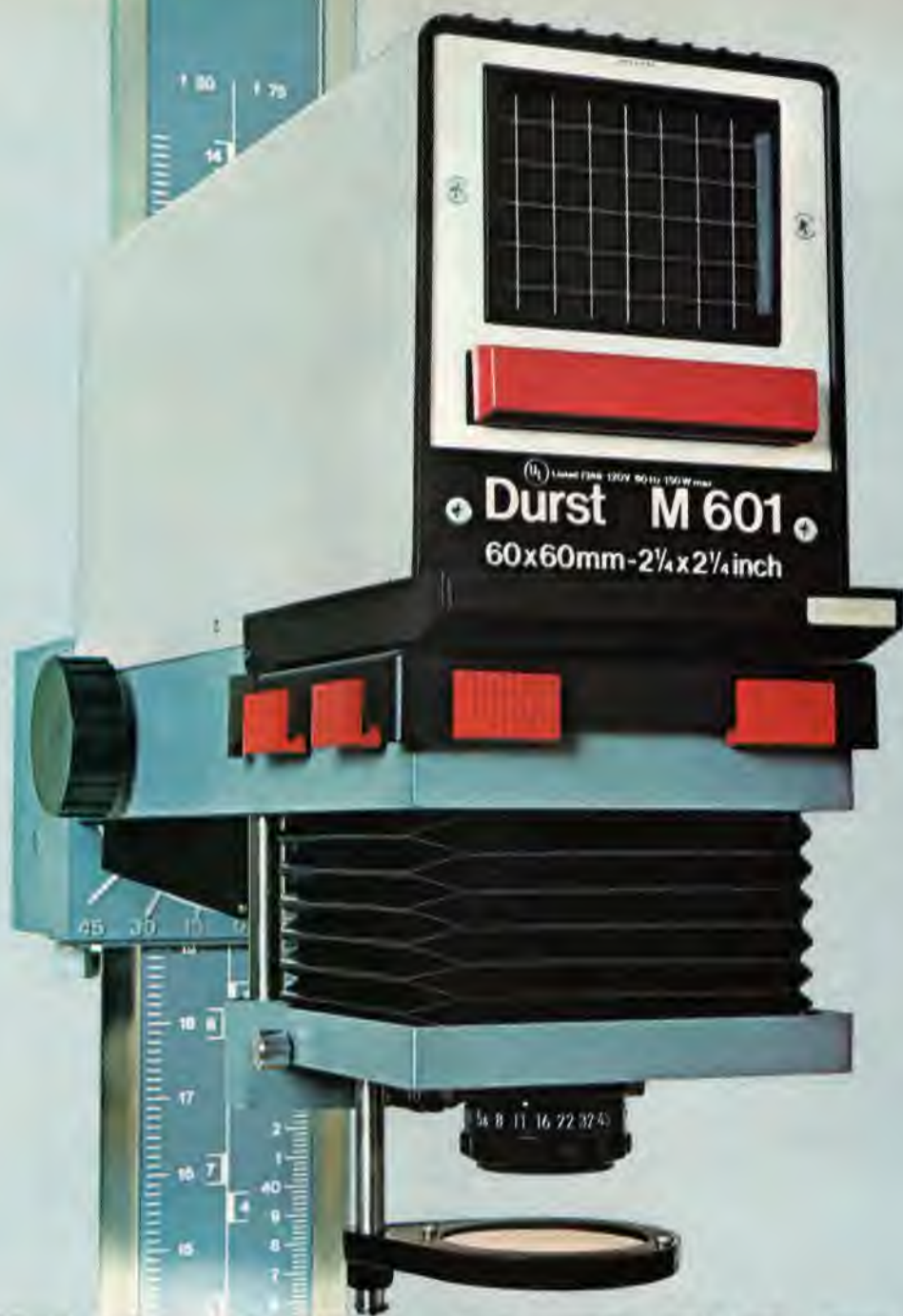
placed at the corners and on the center supports.

If you do your own home color processing with a motorized drum, you can build a small accessory shelf to accommodate the processor. Simply tack and glue a small piece of wood to the splashguard to support the fourth corner of that extra piece of 24¼x11 ¾-inch lumber that was left over from the original cuts. The shelf should sit neatly on the top edge of the sink (see photos No. 8 and 9).

When using the sink as a water jacket for maintaining solution temperatures, water level can be maintained by inserting a copper or plastic pipe in the strainer. The pipe should be short enough to allow the water to overflow before it reaches the level of the top of the processing tanks (not to mention the top of the sink). This way, you can maintain a continuous flow of water without fear of having to bail out the darkroom (see photo No. 10).

You now have a durable darkroom tool, complete with accessories that should stand you in good stead for years to come. It's been made to your exact specifications, didn't take much time to build and cost less than \$75—and best of all, it's restored your peace of mind and family tranquility. □





THE DURST M601 CHALLENGE

Your enlarger is one of the most important purchases in your photographic life...it's every bit as vital to the quality of your photos as your camera. Naturally, you want the highest quality you can afford, but how do you know which brand offers the best value? The decision is easier now. Because Durst has found a way to demonstrate it to you. We **challenge** you to go to any camera store which stocks all the major brands, and compare them, feature for feature, price for price, with Durst. Compare the Durst M601, or another Durst model, with other brands of similar size and price. Decide for yourself which is the best value!

Here are some especially vital points to compare:

CHALLENGE 1 CONSTRUCTION

We challenge you to compare the way each enlarger is put together, and the quality of materials used. Remember that an enlarger's primary function is to hold a negative perfectly parallel to a sheet of paper. Is it constructed solidly enough to remain parallel after years of hard use? On the Durst M601, you'll find rugged die-cast construction, precision quality fit and finish. It all adds up to maximum rigidity and stability for optimum performance. It's a quality you'll find in every Durst enlarger. But how about the other brands?

CHALLENGE 4 ELEVATION CONTROLS

Compare the ease and precision with which the head is raised and lowered on the different brands. On most models, you'll find rollers that ride on the column and result in wobble and side movement. But the Durst M601 has real rack-and-pinion gears plus friction pads. The elevation system becomes part of the column, so there's no play or side movement. And note that the image always remains perfectly centered with the M601 so you never have to move the easel as you make the image larger and smaller...that's one of the advantages of a vertical column. The M601 has unique reference scales and magnification markings, too. And with the head off, it makes a tremendous copy stand!

CHALLENGE 2 COOL NEGATIVES

It may not be possible, but if your dealer doesn't mind, turn on all the enlargers, and leave them on for a few minutes. Then pull out each carrier, one at a time, and see how warm it is. Most will be quite warm; which means that the negative might "pop" out of focus. But one will be cool, and you'll find it in the Durst M601. Because of the Durst condenser reflex illumination system that dissipates heat up, away from the negative. And while you're looking at carriers, check the nearby condensers—the bigger they are, the more even the illumination. The Durst's triple condensers are biggest by far! The M601 has three condensers to assure optimum utilization of the enlarger's output with any negative size.

CHALLENGE 3 HEAD CONTROLS

There are some sophisticated facilities which can be built-in the enlarger head. We challenge you to see how many brands you can find with the following: (a) Tilting head, for wall projection and distortion control. And/or one that can be turned around for floor projection. (b) Tilting and shifting lensboard for distortion control and for centering the image when you're cropping in on the edge of the negative. (c) Masking bands in the carrier, great for getting rid of stray light, creative cropping. The Durst M601 has all of them. We'll bet nobody else does. Most don't have any.

CHALLENGE 5 COLOR CONVERSION

Durst pioneered dichroic color heads, with their dial-in convenience, with the repeatability of fadeproof filters and a color-constant halogen lamp. But now several brands have them, so here's another challenge: Compare the ease of converting from b&w to color and back. It's impossible, or expensive or at least time consuming with most brands. But you can slip the moderately-priced Durst CLS-66 into the M601 in minutes! In fact, there are economical color heads for almost all Durst enlargers! When you compare the cost of enlarger with color head you'll probably find that Durst quality actually costs less!



CHALLENGE 6

THE ENLARGER LINE Check all the enlargers in each manufacturer's line. Is the selection wide enough that you can find the model that's just right for you? There are six Durst models, four of them with optional color heads. One is designed for your camera and your budget. All have features and quality comparable to the Durst M601! For 35mm—The Durst F30 combines budget price with Durst quality construction, incredibly compact size. The Durst M301 remains compact, adds the option of a color head and other sophisticated capabilities, plus negative carriers available for every subminiature size. The Durst A300 is the world's finest, most precise, 35mm Autofocus enlarger. For 2 1/4 x 2 1/4—Choose the economical Durst F60, or the fantastic M601. For 2 1/4 x 3 1/4—See the Durst M800, with all M601 features in a larger size.

Take us up on our challenges, at any camera store. Or write for details—please specify model. Ehrenreich-Photo Optical Industries, Inc., Garden City, N.Y. 11530. ☎



the beseler color print system

by steven rosenbaum

color printing, part II



A wide variety of quality darkroom products, from enlargers to color analyzers, make up the Beseler system.

This is the second in a series of articles dealing with the major color negative printing systems now available. This report deals in-depth with Color by Beseler. In addition to looking at some of the system's components and highlighting their significant features, there is also a basic explanation of electronic color analyzers, which should help answer some of the questions you may have had about them. Through these articles, I hope that you gain enough insight into the available equipment, materials and techniques of color printing so that your decisions will most closely match your needs.

EQUIPMENT AND MATERIALS

The Beseler Color Printing (CP) Fil-

ter set consists of 22 acetate filters: seven filters of graduated density from .025 (pale) to .50 (dense) in each of the three subtractive printing colors, cyan, magenta and yellow. In addition there is one ultraviolet (UV) absorption filter included in the filter pack whenever you are printing color.

The Beseler color printing filters are available in sizes to fit the filter drawers of most popular enlargers. All the filters come with scratch-protective sheaths and are packaged in an easel-back storage box that can stand alongside your enlarger. Preprinted self-adhesive labels are included which can be placed on one corner of each filter for easy identification. The suggested

list price of the 3x3-inch filter set is \$14.95.

The Beseler Daylight Processing Drums are currently available in 8x10-inch and 11x14-inch sizes. In addition to sharing common features with other daylight processing drums, the Beseler drum is unique in two respects. First, the 8x10-inch drum requires only 1½ ounces of chemistry, and second, both of its friction-fitting end caps are removable, permitting efficient cleaning of the drum interior between prints. By using the removable paper holder and small print separator provided, the 8x10-inch drum can be used to process one 8x10-inch print or two 5x7-inch prints or four 4x5-inch prints.

Once the paper is loaded into the drum and the end caps are in place, the room lights can be turned on. With the drum placed on its feet, the chemistry is poured into the spout at one end. From the spout opening, the solution is channeled through a light lock and comes to rest in a trough suspended in the center of the drum. There it stays until you are ready to begin the process. Processing actually begins when you start to roll the drum back and forth on a level surface; this allows the chemistry to come in contact with the paper. After the required length of time, the drum is tilted to one end—this causes the chemistry to empty from the drum. The suggested list prices for the drums are as follows: 8x10-inch drum, \$21.95; 11x14-inch drum, \$29.95.

The Beseler Motor Base Agitator is an electrically operated rotating base support that will accommodate daylight processing drums of most sizes and manufacturers. The motor base agitator eliminates the tedious chore of manually hand rolling the processing drum; at the same time this base will reduce the chance of streaked and stained prints caused by inconsistent hand-agitation techniques. The agitator is equipped



1. To exaggerate the rich blue color which surrounds this building, the sky and foreground reflection have been burned-in using an additional 50Y filtration in the enlarger. This has created a gradation of color as well as density.

2. By using the color analyzer, this pipe was printed to match the reddish-orange building in illustration No. 1. In fact, by placing the two images side-by-side and isolating the orange tone, you would see that these two tones are identical. Since, however, the pipe was *made* to match and in reality was not the exact same color as the building, the sky looks off-color. This happens because an overall change in filtration will change *all* the colors.

3. While this pipe still appears similar in color to illustration No. 2, there are subtle differences which on closer examination would become apparent. The sky tone, however, reveals (even at a fast glance) that this modified filter pack has produced a print which is probably closer to reality.



ALL PHOTOS BY THE AUTHOR.

When printing negatives with a color analyzer like the Beseler units described, you must be careful to "read" the right tone for the program being used. Each of these photos reveals a similar yet different orange tone. It would be difficult to use just one orange program to print each of the images properly. By photographing a standard gray card, as described in text, and printing each of the negatives using a gray card program, any of your negatives will print well.

color printing, part II

with an adjustable leveling foot, which enables you to adjust for a work surface that may not be absolutely level. The suggested list price of the Beseler motor base agitator is \$49.95.

Beseler Two-Step Color Print Chemistry is compatible with all color printing papers and may be used at ambient room temperature (between 66°F. and 107°F.), with an appropriate adjustment in processing times as indicated by the instruction sheet. If you prefer to *always* process your prints at the *same* preselected temperature, this too is possible, and complete directions are provided for utilizing an optional heated-water presoak so that your printing does retain the greatest degree of consistency from one day to the next.

The chemistry is provided in easy-to-mix powdered form in units to make one quart, one gallon or 3½ gallons of solution. By using the Beseler drum, which requires only 1½ ounces of solution, and by using the chemistry once and then dumping it, a gallon of solution should process approximately 85 prints. Complete mixing instructions, storage recommendations and a comprehensive troubleshooting guide are included with the chemistry. Suggested list price for the gallon-size kit is \$19.

The Beseler Subtractive Calculator measures approximately 4x5 inches and contains 130 separate squares, each representing a different trial filter pack, ranging from no filtration to 120 yellow and 90 magenta. The calculator, which offers the capability of determining with just one exposure, the correct filtration and exposure necessary for printing your negatives, has an extended filtration range. It is designed to accommodate the high magenta and yellow filter packs normally encountered when printing the new color negative films. A significant feature of the Beseler calculator is that the correct filtration and exposure information can be read directly from the calculator test print, without having to refer to other charts or guides. Of course, included with the calculator is a thorough set of instructions, which carefully explains how to use the calculator,

step-by-step, and what to do if things don't go as they should.

The Beseler subtractive calculator kit consists of the calculator device, an integrating diffusion filter with its universal adapter (which fits most popular enlargers), a circular gray scale (to aid in making a visual determination of the correct filtration) and its instruction folder. The list price is \$24.95.

ELECTRONIC COLOR ANALYZERS

No instrument, not even a color analyzer, can tell you how a good print should *look*; visual judgments like that are much too subjective and reflect your own personal tastes. You can begin to rely on a color analyzer only *after* you've made a good print to your complete satisfaction, either by trial-and-error or through the use of a subtractive calculator. A color analyzer is an electronic device that eliminates the need for making test prints from each new negative. Once a good print has been made from a reference negative, the exposure and filtration information that it took to make that good print is stored in the analyzer—this is called "programming the analyzer." Programming itself is a routine procedure, which generally consists of turning a few dials on the analyzer until a meter needle indicates the proper settings. This simple procedure is repeated for cyan, magenta and yellow values, as well as for the enlarger lens setting.

Once programmed, the analyzer will *compare* all future negatives you wish to print with the information you have stored in it about the reference negative. The result of this comparison will be the amount of filtration and/or exposure that you need to add or subtract in order to make a good print with any other negative. Basically, there are two kinds of programs used with a color analyzer. Both types, the *integrated* program and the *spot-reading* program, have some strengths and limitations. The kind of program you work with depends on the specific analyzer you are using and the kinds of negatives you normally print.

Briefly, the *integrated* program involves the blending of all tones in a negative. This is generally accomplished by the use of an integrating or diffusing filter in the enlarger's light path. The analyzer then records an average tone, produced by the blending of all the tones in your negative. The major strength of an integrated program is that as long as you work with "average" negatives, the method is

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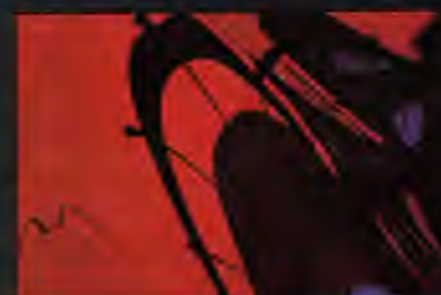
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Turning the Camera Inwards

Some photographic images are drawn directly from nature. Others are conceived first in the mind—and where they do not already exist in nature, are created for the camera.

This is Meryl Joseph's photographic genius. She "turns the camera inwards," and from an inward vision creates a visual statement of an emotion, myth or fantasy.

The series shown here is entitled "Bicentennial: The American Dream in Transition." It represents "...a union of technology with a dream of beauty at a time when America is undergoing a period of re-evaluation, in which myths are being exploded and given new definitions. A wrenching period of transition." She feels that the change will be "positive, with an ultimate harmony."

Meryl creates sculptures for photography with transparent materials selected for their radiance. These pieces, when explored and re-discovered through the camera, "assume their own reality."

She likes the F-1 system for this work because of its ease of handling, bright viewfinder, precision exposure metering and optical quality. "I need a camera with which I can have an intimate relationship. I'm very close to the camera. If I see something that is new, through the camera, I can re-structure the image; it helps to be able to forget that the camera is there."

"The half-stop increments on the FD lenses are very important to me—the lighting is complex and specific. I need to have very exact readings to capture the



vibrancy of the sculptures. Once I'm certain about what I want to capture, I must work quickly, and with precision. Since most of my work is done close to the subject, it's important for the camera to be well

balanced, responsive and dependable."

For most of her work, Meryl uses the F-1 with the FD 50mm f/3.5 S.S.C. Macro lens. This lens has been designed especially to give outstanding sharpness, contrast and flatness-of-field at close up distances. It focuses from infinity to 1:2 without accessories, and to 1:1 with the supplied Life Size Adapter. Since it has such a great focusing range, it is as suitable for general use as for close-up photography, and makes an outstandingly versatile "normal" lens. With the selective metering system of the F-1, the macro system equipment available (including two macro lenses, two bellows units, close-up lenses, extension tubes and eyepiece accessories) makes the camera ideal for critical close-up and macro work. Since there are subtle exposure differences in the work Meryl is photographing, the ability of the F-1's semi-spot metering system to isolate areas of different brightness is extremely important. And to her, "The brilliance of the viewfinder is vital in accurately visualizing the brightness relationships in the sculpture."

Her photographic involvements have included shooting stills for filmmakers, theatrical photography, several New York City shows, a job as photography director on an archeological expedition and seven photographic books, the most recent of which is Random House's *Who Won Second Place at Omaha?*

Meryl Joseph is an artist who looks within herself for an image, and then makes it a reality with a camera.

Canon® F-1



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color printing, part II

fast, simple and repeatable. Since this kind of program depends on an integration of all the tones in the negative, it is possible to accidentally fool the analyzer by trying to print a negative that is not average (i.e., one which shows a predominance of one color or another). For a more detailed description of this principle of tone integration as a potential pitfall, refer to the "Subtractive Calculator" section of "Color Printing, Part I" in the January, 1976 issue of PhotoGraphic.

The alternative to an integrated program and the second way of using a color analyzer is the *spot-reading* method. Spot reading is more precise in that the program you record relates to filtration and exposure information necessary to reproduce one specific, preselected tone from your negative. Since spot readings are not fooled by surrounding tones, this is probably the most accurate way to work. Spot-reading programs can be made for any tone you wish (a flesh tone, an 18-percent reflectance gray card, your yellow car, etc.), but it is important to match future negatives exactly with the same single tone programs you have selected. An example of why this is important can be seen in the accompanying illustrations. When using a spot-reading program, you may not always have the same tone to compare with in future negatives; this should not be a major handicap to your color printing effort as long as you learn to anticipate your printing needs.

Beseler offers three color printing analyzers, any of which can be used for either spot readings or integrated programs. The three models are designated as the PM-1 Color Analyzer with a suggested list price of \$149.95; the PM2-L Color Analyzer with a suggested list price of \$229.95, and the PM-2 Color Analyzer with a suggested list price of \$339.95. All of the units have internal voltage stabilization for greater consistency, and there's sure to be a model suited to your color printing needs, whatever they may be. Of course, each of these analyzers can be used with any enlarger, whether you are using color printing filters or a

dichroic lamphouse as your light source.

If you are just starting to get involved with color printing, you might be interested in the Beseler Subtractive Starter Kit. The kit contains the following items:

- 1 quart Beseler color chemistry
- 1 8x10-inch Beseler processing drum
- 1 Beseler subtractive calculator kit
- 1 set of color printing filters
- 1 Beseler color printing guide

The suggested list price for the Beseler Subtractive Starter Kit with the 3x3-inch filters is \$64.95. If purchased separately, the combined list prices of these items would add up to \$71.75. All of these items are available either individually or combined from your local dealer.

COSTS

As mentioned earlier, the Beseler color printing chemistry is compatible with all color printing papers. Beseler does not offer their own color printing paper. In tabulating the cost-per-print information for working with the Beseler system, I have based the paper cost data on the suggested list price for Kodak's Ektacolor Type 37 RC paper. The combined cost (paper and chemicals) for an 8x10-inch print is approximately 63¢, based on the suggested list price of the materials, as follows: Kodak Ektacolor paper, 100 sheets at \$40.55 = 40½¢ per 8x10-inch print; Beseler Two-Step Color Print Chemistry—85 prints at \$19 per gallon = 22¢ per 8x10-inch print.

One other point worth mentioning is that this cost data is based on one-time use of the Beseler chemistry in the Beseler processing drum. Beseler recommends up to four-time reuse of the chemistry. As you may very well imagine, such reuse might add up to significant additional savings if your print volume is large.

The Beseler Color Printing Guide is a handy reference source for determining filter corrections when printing color negatives. This tool uses photographic illustrations to help you visualize the necessary filter corrections and their desired effects. The suggested list price for the guide is \$1.95. While no new schedule has yet been announced for the traveling Beseler Color School, I have been informed that Beseler does intend to continue this very popular one-day color workshop. For more information about the school, contact: Beseler Photo Marketing Company, Inc., 8 Fernwood Road, Florham Park, New Jersey 07932. □

Beseler Color Printing Is Duck Soup...

Whether you start from negatives or slides.

RP5 Chemistry for prints from slides.

With Beseler Reversal Print Chemistry you can process beautiful color prints in minutes—with professional looking results. Use our RP5 soup at room temperature or pre-heat if you prefer for faster processing times. Either way, you'll get a magnificent quality print. Now you can enjoy the satisfaction of seeing your favorite slides turned into rich, colorful display prints—with the stamp of your own personal creativity. It couldn't be easier—or faster!

2-Step Chemistry for prints from negatives.

Beseler 2-Step Print Chemistry makes color printing from color negatives as easy as black and white. It takes just

two easy chemical steps and a brief water rinse. Since we introduced our 2-Step soup, thousands of amateurs who never made a color print before are now color printing experts. And no wonder, when you consider the crisp, beautifully color saturated results you get with a minimum of hassle or effort! Like RP5, you can use our 2-Step Chemistry at room temperature without any temperature control.

You can also develop your own Kodacolor II, Vericolor II, and similar type color negatives with our new Beseler CN2 Color Negative Developer. It's the first developer of its kind that gives you your choice of two convenient processing temperatures: 75° and 85°F. CN2 uses a three step process to give you color negatives with excellent fidelity and maximum sharpness for good enlargeability.

Why not pick up some of our "easy as duck soup" chemistry at your Beseler dealer today. Or write to us for more information.



Color by Beseler...#1 in the dark.



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1



2



GALLERY '76

3



4





5

□ The photographs on these pages were taken by photographers of professional caliber. In order to provide these talented individuals with a forum for displaying their best efforts, we present this month's Gallery '76. If you feel your photographs are of similar caliber, send us the evidence (along with a stamped, self-addressed return mailer—in case we don't agree). There is no limit to the size or number of photographs you may submit to Gallery '76, but only black-and-white prints will be accepted. Your name and address and all pertinent data: camera make, lens, film, exposure, special printing techniques, etc., must be printed *on the back* of each picture. Also, in any photograph in which a person or persons can be identified, the photograph must be accompanied by a signed release from each recognizable individual. PhotoGraphic will pay \$25 for each picture published. Prints are accepted for one-time use and will be returned after publication date. □

1. Jerry Cooper clicked the shutter of his Canon FTb at precisely the right moment to capture the dynamic action of these Montana cowboys. Photograph was made with a 200mm Canon lens and Kodak Panatomic-X Film exposed for 1/250 at f/4; negative printed on Kodak Ektalure-K paper.

2. Michael Parvin photographed these sculpted figures at twilight to create effect of dancing shadow puppets in this shot, taken with Pentax Spotmatic and 55mm SMCT lens; Ilford HP4 Film exposed for 1/125 at f/4.

3. Unusual camera angle gives an abstract effect to what might have been an ordinary shot of two sailors. Jeffery Meyers used a Nikon and 105mm Nikkor lens to expose Ilford FP4 Film for 1/15 at f/8 to make the picture.

4. Careful posing of subject in front of natural backlighting from the sun makes for this striking well-composed silhouette. Peter J. Frega made the photograph with a Minolta SR-T101 and 28mm Rokkor lens; Kodak Tri-X Film exposed for 1/250 at f/8.

5. Imaginative use of negative space—in this case the meadow in foreground, darkened by burning-in during printing—adds dramatic effect to Jack Hennessey's photo, taken with Nikon FTN and 135mm Vivitar lens. Tri-X film was exposed for 1/125 at f/8 and negative printed on Agfa paper.

Cut Enlarging Exposures: Switch From Low To High

It is not at all unusual for a 16x20 enlargement to require a basic exposure of two to five minutes with average speed enlarging papers, but that's only the beginning. After the basic exposure comes corner burning, edge burning and burning-in the sky. Some areas of the print may require five times the basic exposure to create the proper effect, and then too, there is the problem of reciprocity failure.

Not too much is said about reciprocity in textbooks on enlarging, but it cannot be ignored. When exposures for black-and-white prints exceed one minute, changes in exposure often fail to produce the expected changes in print density. With short exposures, say 10 seconds, an increase of 100 percent in exposure can be expected to darken most areas by one full tone. This darkening would be equivalent to opening the lens one stop, with constant exposure or a darkening of one full step in the Zone System. When reciprocity failure occurs, the paper becomes less responsive, and here's what you can expect.

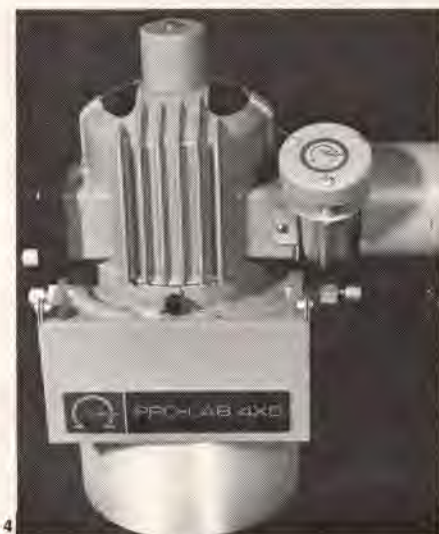
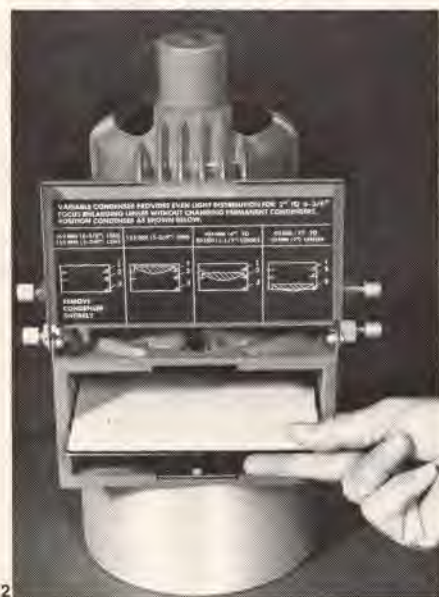
If your basic exposure for an 8x10 enlargement from a 35mm negative was one minute, a 16x20 enlargement from the same negative would take four minutes. Now say you want to print the sky a full tone darker to bring out the clouds. This brings the sky exposure to eight minutes. To darken the corners of the sky area by one full tone below its central area means doubling the corner exposure—or 16 minutes total. With exposures this long, reciprocity failure can increase the needed exposure anywhere from 50 to 300 percent. This means we're talking about giving the sky corners as much as 24 to 48 minutes of exposure. When making color prints from transparencies, the situation can be almost as bad at the 8x10 size. With Cibachrome, for instance, I've found that when my basic exposure was 20 seconds, an increase to 40 seconds would not lighten the dense shadow areas in an 8x10 enlargement.

WHAT CAN WE DO?

The basic exposure for an enlarge-



How To Build a Unit to Control Light Output By Parry C. Yob



ment is controlled by a number of factors the photographer can't do much about. The manufacturer determines the speed of the paper, and if you want his particular surface texture, you take the speed he gives you. This isn't all bad because enlarging paper that's too fast could force you to work in total darkness, and short exposures make it difficult to dodge and burn. However, there still are other problems. We can't do anything about reciprocity failure except to shorten the exposures, and the only way to do this is to increase the brightness of the image on the easel.

The image brightness can be increased in two ways. The enlarging lens can be opened up, or the intensity of the enlarger light source can be increased. To make up for focusing errors and to account for the fact that most enlarging lenses give optimum performance about one stop below maximum aperture, most lenses are used at $f/5.6$ or $f/8$, and this leaves only the option of increasing the power of the light source.

A lot has been written about the value of cold-light sources for reducing exposure times, but my tests have shown that on the average, switching from a 75-watt No. 211 bulb to an Aristo cold-light source cuts the exposure by only 50 percent. This is the same reduction I achieved with the far cheaper alternative of switching to a

150-watt No. 212 bulb. The 150-watt bulb did not heat the negative any more than the so-called cold light, because the electrode heaters on the cold light cannot be shut off during a printing session. These heaters provide the instant starting needed when using an electronic timer or even a hand switch. When using the cold light, there is also the problem of where to put the filters for Kodak Polycontrast papers. Placing them above the negative where they do not cause image degradation means putting them on top of the negative carrier, and every time the carrier is removed, they fall on the floor.

For about \$900 I could have gotten a Ferrante Codelite, which is a cold-light head that provides continuously variable contrast without filters, but for less than \$15 I was able to get an eight-times increase in light output with a system that allows me to keep the filters above the negative where they belong.

CAUTION-HEAT

I have used overvolted 75-watt No. 211 enlarging bulbs, overvolted 60-watt bulbs and No. 1 photoflood bulbs in several enlargers without mishap, but the reader should be warned that unless adequate precautions are taken, there is a possibility that prolonged exposures or failure to provide proper cooling intervals could cause a condenser to shatter from heat. I cannot guarantee that the precautions I use will work with every enlarging system, but the reader should be able to make suitable adaptations to his particular equipment.

My Omega enlargers have provisions for interposing a heat-absorbing glass between the light bulb and the condensers (see photo No. 2). If you do color printing, you may already have such a glass for your enlarger. If a heat glass is not offered as a standard part for your machine, you can purchase suitable glass from Edmund Scientific Co. (300 Edscorp Bldg., Barrington, New Jersey 08007), and improvise a method of installing this protection (see photo No. 3). Acetate fil-

1. Omega D5VXL enlarger mounted on a professional floor stand and fitted with an accessory blower which allows huge (30x40-inch) enlargements to be made from 35mm and 4x5 negatives. Notice resistance box to right of enlarger column.

2. Modern enlarger lamphouses like this Omega D-5 provide for easy insertion of heat-absorbing glass which protects condensers and filters from high lamp temperatures. A card has been placed under glass to make it visible.

3. Heat-absorbing glass, like this factory-cut circle, is also available for some older enlargers such as this condenser for an Omega D-2. Wearing clean cotton gloves when dropping the glass in place will avoid fingerprints.

4. Blower attached to right side of enlarger lamphouse draws cool air through interior, cooling unit when photoflood bulb is on full power. With a little ingenuity, you can provide similar cooling for enlargers for which factory blowers are not available.

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Cut Enlarging Exposures: Switch From Low To High

ters used for Polycontrast papers or color printing should be placed below the heat-absorbing glass.

A cooling fan is also available for Omega enlargers, and this considerably increases the time the bulb can be left on high output without overheating (see photo No. 4). If you contemplate making murals or other work which requires long exposures with the hot-lamp system, a blower or exhaust fan is well worth the added cost. Again, if your enlarging system does not provide a power cooling system as an option, you may want to improvise. Inexpensive enlargers with single wall lamp-houses can be cooled somewhat by directing an electric fan on the exterior or placing the intake from a vacuum cleaner hose so that cool air is drawn past the outside metal. Light gauge metal cooling fins can also be cut so that they rest on the upper half of a spherical lamphouse, and these can be used with or without an additional fan arrangement.

In any case, you should exercise reasonable judgment as to how hot you allow your lamphouse to get. By keeping the lamp on low power while focusing and turned off during the four or five minutes it takes to develop the enlargement and change negatives, the head will cool sufficiently.

HOW IT WORKS

Fortunately, a No. 1 photoflood and a No. 211 enlarging bulb have the same exterior dimensions. This means that any enlarger which takes a standard bulb can be fitted with a No. 1 photoflood for an eight-times increase in light output. This extra light is not needed for small enlargements from thin negatives, nor is it needed for focusing, but constant bulb changing is not practical. The trick is to lower the light output of the photoflood to that of a standard bulb and decrease the heat output at the same time. This is accomplished by placing a resistance in series with the photoflood when less light is needed.

The unit described here is designed to let you switch from full photoflood power to exactly the same output as a No. 211 enlarging bulb by simply flicking a switch. By operating the photoflood at lower output, its burning life is extended to approximately that of the enlarging bulb.

BUILDING THE RESISTANCE BOX

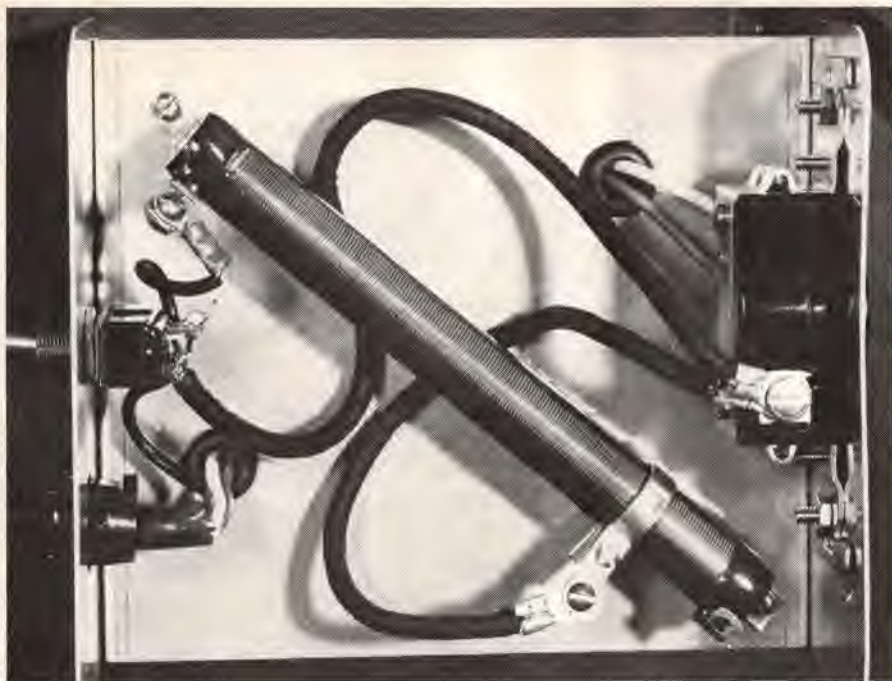
All of the components are specified in the "Parts List;" only the metal exterior box is not called out because it must be selected to fit. The one shown here is a No. LMB CO-3 aluminum cabinet which is $7\frac{1}{4} \times 5\frac{1}{2} \times 3\frac{1}{8}$ inches in size and is manufactured by L M B (see Parts List). However, the resistor in the photos is only a 75-watt unit and is shorter than the 100-watt resistor mentioned in the Parts List. It was necessary for me to specify the 100-watt resistor in order to have a component which you could purchase by mail if necessary. The higher wattage resistor provides an additional safety factor, but it *does not* change the operation of the completed unit. However, since the 100-watt resistor would be too tight a fit in this cabinet and the exterior of this box gets too hot to handle, I recommend that you find a larger one. One that measures approximately $8 \times 6 \times 6$ inches should be suitable, provided that the box is well-ventilated metal, *not plastic*, and has rubber feet. When used on low power, the resistor gets very hot, and a plastic case could melt and become a fire hazard.

The metal cabinet protects your fingers from burning on the hot resistor or getting an electrical shock in the dark, so don't be tempted to bread-board the gadget or put it in a wooden box, which could also become a fire hazard.

Carefully study the arrangement of the cabinet components as shown in photos No. 5 to 8. You'll need to drill holes to accommodate the SPDT (single-pole, double-throw) switch and the cord stopper on the incoming end of the cabinet. Measure these components to determine the proper hole diameters. I used a $\frac{3}{4}$ -inch hole saw to make the hole for the cord-stopper, which not only stops the cord but keeps the metal from cutting the cord's insulation.

Use a metal cutting hole saw to make a $1\frac{1}{2}$ -inch hole for the grounded outlet on the cabinet's outgoing end, then place the outlet on the outside of the metal and use its mounting brackets as a template while drilling four $\frac{1}{8}$ -inch holes for the 6-32 mounting bolts.

Temporarily mount the switch and the outlet, and place the resistor diagonally across the bottom of the chassis (see photo No. 5) so that it clears all other components by at least $\frac{1}{2}$ inch. With the resistor positioned, use the holes in its feet to mark the locations for the $\frac{1}{8}$ -inch mounting bolt holes. Re-



ALL PHOTOS BY THE AUTHOR.



5. Top view of chassis, showing arrangement of components. Note that wires passing underneath the resistor are asbestos insulated for heat protection and do not contact resistor. Sliding tap on the resistor is in final position after calibration.

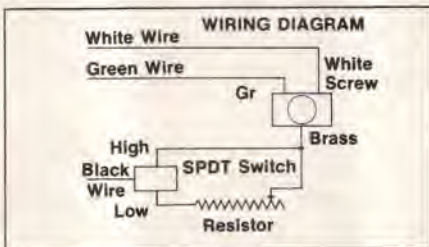
6. Bottom view of chassis. Note that grommets protect wire from cutting insulation material and are diagonally opposite from resistor mounting bolts.

7. Incoming (power cord) end of chassis. Cord stopper protects cord from chafing and prevents it being pulled from box.

8. Outlet end of chassis showing three-prong grounded outlet. The two bolts closest to outlet go directly into threads of frame, and the two outside bolts are held by nuts behind slots of frame.

9. Setup for calibration. Readings are taken from black card at right, making sure that light meter sees only the card (see text for details).

10. Completed gadget ready for use. Holes in cabinet's exterior are an absolute requirement to allow ventilation and to release heat from resistor when unit is on low power. A larger box is desirable if possible. The in-line switch is not required for power cord, since power to box should be supplied by an electronic timer or hand-timing switch, but three-prong grounded plug is a must.



move all parts and drill two 1/2-inch holes on the opposite diagonal from the resistor mounting holes. These are for the rubber grommets which allow part of the wiring to pass under the chassis.

WIRING AND ASSEMBLY

Begin by placing the rubber grommets in the chassis bottom, then place the switch in its mounting hole, but do not tighten the retaining ring enough to

prevent easy rotation while making connections.

Remove the exterior rubber cover from your three-wire grounded appliance cord for about eight inches on the opposite end from the molded three-prong plug. Now feed the three wires through the cord stopper from the outside until about 3/4 inch of the exterior cover protrudes on the inside of the cabinet end. Feed the white and green wires down through the base of the chassis at the nearest grommet, then under the base to the opposite grommet. Pull the wires through the second grommet and cut them to the proper length to reach the binding screws of the outlet when it is mounted, but don't attach the outlet just yet.

Now close the cord stopper around the cord and shove it into the metal hole to lock the cord in place. Cut the black wire to the proper length and solder it to the center connector of the SPDT switch. Be sure to leave enough black wire so the switch can be easily rotated 90° in either direction.

Next connect the white wire to the white binding screw and the green wire to the green binding screw of the grounded outlet. The green wire is the ground wire; on some outlets the proper binding screw is marked "gr" instead of being green in color. Rotate the outlet 180° on its long axis while attaching the wires, then simply rotate it back, and it will be properly positioned for mounting. Now bolt the outlet in place permanently.

Use a piece of No. 16 or larger asbestos-covered appliance wire, *not rubber insulated*, to connect one side connector of the switch to the brass colored binding screw of the outlet. Make this wire long enough so that it will easily pass beneath the resistor without touching it when the resistor is in place.

Mount the resistor on the chassis, using 1/2-inch 6-32 stove bolts and nuts, then connect the nearest fixed connecting lug of the resistor to the remaining connector of the switch, using a scrap of the black wire (cut earlier from the power cord). Up to now it was convenient for you to have the switch body in a horizontal position for soldering, but now it should be rotated so the toggle lever moves up and down. The connector whose wire is attached to the outlet should be at the top at this point. This is not vital, but it places the handle up for "High" and down for "Low," which is convenient when working in the dark.

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insulated appliance wire to connect the movable slide tap of the resistor to the brass binding screw of the grounded outlet, passing the wire beneath the resistor. Use plenty of wire so that there is no chance of the wire pulling tight and touching the resistor when adjusting the tap. There will now be two wires connected to the brass colored screw of the outlet. One goes directly to a switch connector and the other to the resistor.

Position the sliding connector of the resistor about one inch from the unconnected end of the resistor and gently tighten the clamping screw.

CALIBRATING THE UNIT

At this point, if you own a high-quality VOM meter, such as a Simpson 260, use it to adjust the resistance to 35 ohms and clamp the slide in place. If you don't have access to such an instrument, use the following procedure to calibrate the entire unit.

With the chassis outside the case, plug a suitable lamp cord and socket into the outlet of the unit and arrange the setup as shown in photo No. 9. Place a dark gray or black card on the table near the base of the socket in a position where it will remain fixed during calibration. Place a No. 211 enlarging bulb in the socket and plug the unit power cord into a grounded outlet.

If possible, take a reading from the card (in your darkroom) using a handheld light meter and only the light of the enlarging bulb with the switch in the High position. If you do not own a handheld meter, you can use the through-the-lens system of your single-

lens reflex camera, but in any case make sure your reading includes only the card and no part of the base or the enlarging bulb.

Record the exact position of the meter needle for the handheld meter or note the ASA, shutter speed and aperture for which the needle centered on your camera meter system.

Unplug the power cord and replace the enlarging bulb with a brand-new No. 1 photoflood bulb. Switch to Low and plug in the power cord. The light from the photoflood will now be roughly the same as that from the enlarging bulb. Make light meter readings from the card in the same manner as before and determine whether the photoflood is giving off more or less light than was measured with the No. 211 enlarging bulb. *Unplug the power cord before attempting to adjust the resistor.*

If the photoflood is giving off more light than the enlarging bulb, loosen the sliding tap, then move it about ¼ inch toward the unconnected end of the resistor and tighten. If the photoflood is giving less light than the enlarging bulb, move the slide about ¼ inch in the opposite direction and tighten. But take care: the resistor and tap will be hot and must cool a few minutes, or you'll burn your fingers.

Plug the unit in and take another set of readings. If necessary, make further fine adjustments of the sliding tap until you get exactly the same reading as you got with the enlarging bulb. In other words, the needle of your meter should be in almost exactly the same position. With the light output exactly calibrated and the power off, clamp the sliding tap permanently in position, using its clamping screw.

THE FINAL TEST

Before taking the calibration setup

ITEM	PARTS LIST		
	SOURCE	CAT. NO	EST. COST.
50-ohm 100-watt adjustable resistor	Lafayette Electronics	30F44088	\$2.59
125-volt 6-amp SPDT toggle switch	Electrical supply house	None	\$1.39
125-volt 15-amp grounded outlet	Eagle Electronics	815	\$1.20
Ventilated metal cabinet	LMB, 729 Ceres Avenue, Los Angeles, California 90021		\$6
3-wire #16 power cord with 3-prong plug	Electrical supply house		\$1.50
Cord stopper	Electrical supply house		10¢
2 rubber grommets	Electronics dealer		4 for 10¢
8 (6-32) ½-inch stove bolts with nuts	Local hardware		32¢
2-foot #16 asbestos-insulated appliance wire	Electrical supply house		\$1

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apart, take a set of meter readings from the card with the photoflood bulb and the switch in both High and Low positions. Meter only the card; don't look at the bulb with the switch in the High position. Set your meter at some convenient ASA rating and aperture and determine the change in shutter speeds which results when changing from High to Low. For instance, if a particular ASA rating gives a reading of 1/10 at f/16 on Low and 1/60 at f/16 on High, the High is putting out six times the light as the Low. If your reading is 1/10 at f/16 on Low and 1/100 at f/16 on High, you're getting 10 times as much light on High. (The ratio for my unit was eight.)

It's important to know the ratio between High and Low light positions, because this is directly related to enlarging exposures. If you've made a test print with the switch in the Low position and find that the exposures are going to run too long, simply divide the estimated proper exposure by this number to get the exposure when using the photoflood on high.

USING THE UNIT

If your timer does not have a grounded outlet for plugging in the resistance unit's power cord, the timer should be rewired to provide one. You can use an adapter to plug your resistance unit's three-prong plug into your timer, but the grounding lug of the adapter should be connected (by separate wire) to a cold water pipe or other permanent ground.

When the chassis is inside the case, simply plug the unit into your timer; plug your enlarger into the unit, and you'll be able to reduce your exposure time by 85 percent whenever it becomes necessary.

Please note that I haven't mentioned the possibility of burning up variable contrast filters because I assume you know that the middle grades of graded papers (like Kodabromide) are faster than the middle filtered grades of the fastest variable-contrast papers (like Kodak Polycontrast Rapid), and the number of available surfaces is severely limited for the high-speed variable-contrast papers. If you use VC filters, put them between the heat-absorbing glass and the condensers. Also, to those members of the diffusion-enlarger cult who haven't been sold down the cold-light river, please be advised that I have used overvolted (equivalent of photoflood) lamps in diffusion enlargers for many years with excellent results and greatly reduced exposure times. □

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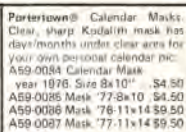
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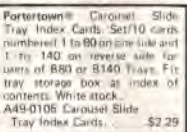
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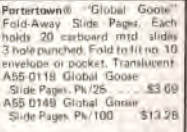
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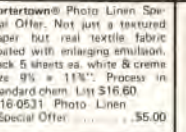
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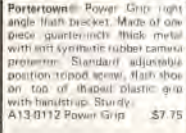
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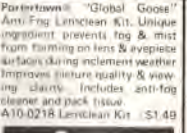
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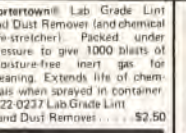
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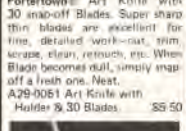
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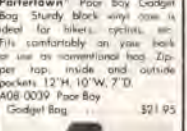
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Portertown® Cellulose Sponges. Absorbent, fine pore sponges for darkroom cleaning and wiping. A22-0529 Sponge GFP Size 1x3x5 \$0.80 A22-0530 Sponge GFP Size 1x4x6 \$1.29 A22-0531 Sponge GFP Size 1x4x7 \$1.94



Portertown® Poor Boy Gadget Bag. Shundy black vinyl bag is ideal for lenses, optics, etc. Fits comfortably on your back or use as conventional bag. Zipper top, inside and outside pockets. 12" H, 10" W, 7" D. A08-0039 Poor Boy Gadget Bag \$21.95



Portertown® Emblem—beautiful large 4" embel has camera design of black & silver thread on medium blue background w/gold colored letter & border. A14-0033 Nikon Emb \$3.99 A14-0037 Pentax Emb \$3.97 A14-0038 Minolta Emb \$3.99 A14-0133 Vivitar Emb \$5.70



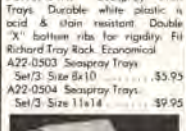
Portertown® Photographer's Vest—very attractive & practical. Has worst filter tabs, shoulder straps, zip front, 10 ballpans & 2 deep pockets. Washable. A14-0097 Vest-small \$24.95 A14-0098 Vest-medium \$25.00 A14-0099 Vest-large \$25.25 A14-0100 Vest-XL \$25.40



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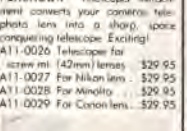
Portertown® Seaspray Print Trays. Durable white plastic & acid & stain resistant. Double "X" bottom ribs for rigidity. Fit Ricard Tray Back. Economical. A22-0503 Seaspray Trays Set/3 Size 8x10 \$3.95 A22-0504 Seaspray Trays Set/3 Size 11x14 \$9.95



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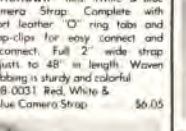
Portertown® Telescope-Attach. Converts your camera telescope into a sharp, space compensating telescope. Exciting! A11-0026 Telescope for 35mm SLR (42mm) lenses \$29.95 A11-0027 for Nikon lens \$29.95 A11-0028 for Minolta \$29.95 A11-0029 for Canon lens \$29.95



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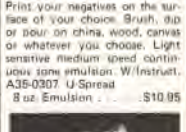
Portertown® Filter Weller. Holds six filters through size 69mm in individual compartments clearly visible for fast & easy selection. Rich black simulated leather weller is well padded for sure protection. Snap shut. A07-0458 Portertown® Filter Weller \$4.75



Portertown® Space Saver chemical containers. Each holds one gallon. Five in a row take up less than 13" of shelf space. Sturdy plastic with easy turn—no drip spigot. Ideal chemical storage. A22-0054 Space Saver Set of 2 \$10.00 A22-0055 Set of 5 \$15.00



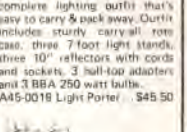
Portertown® U-Spread Emulsion. Print your negatives on the surface of your choice. Brush, dip or pour on china, wood, canvas or whatever you choose. Light sensitive medium speed continuous zone emulsion. W/instruct. A35-0307 U-Spread 8 oz Emulsion \$10.95



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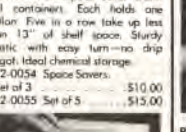
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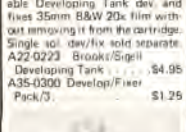
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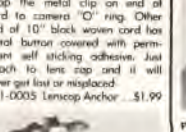
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BLUEPRINT SERIES

How To Construct a Borderless Enlarging Easel

BY JOHN B. BUNCH

PROJECT: To construct an enlarging easel that will permit you to make borderless prints, in any size, and which can also be used vertically as a copy holder for photo copying work.

PURPOSE: To avoid relying upon noisy, vibrating, dust-throwing vacuum cleaners, double-sided tape, spray adhesive or notched rubber tips that put half-moons on your print borders, while constructing a useful borderless easel for less than \$10.

EQUIPMENT: 1. A 24x36x1-inch sink cutout of composition board topped with Formica, available from local kitchen cabinet shops or any other wood or metal surface that you can cut easily; 2. Old aluminum window frame or wood or plastic molding; 3. T-square or carpenter's steel square; 4. Screws, nails or cement, as applicable, to attach molding; 5. Masking tape; 6. Two pints of glycerin (available at drug stores); 7. Six envelopes (16 teaspoons) of plain Knox gelatin; 8. 1½ cups of cold water; 9. Double boiler pans; 10. (Optional) 14 drops of oil of cloves, alum, and sugar; 11. Bubble level.

CONSTRUCTION: This borderless easel is based upon the hectograph, an old graphic-arts process used as an ink image-holding medium for hand printing limited numbers of copies and sometimes used to hold the sheet film in large copy cameras. The substance involved is a tacky, semihard gelatin that, when heated and poured into a frame, cools to become an excellent and semipermanent photographic paper easel. (For a more complete discussion of the hectograph, and many other useful graphic processes, see *Techniques for Producing Visual Instructional Media*, by Ed Minor and Har-



1. Completed borderless easel holding print.



2. 16x20 easel marked for smaller print.

vey Frye, McGraw-Hill Book Company, New York, 1970.)

To make easel, first cut your baseboard from the sink cutout or other easily cut material. Allow space for the molding plus about ½-inch extra.

In other words, the baseboard should be the size of the largest print you intend to make, plus twice the width of the molding, plus one inch in length and width.

Next, draw a rectangle on

the surface of the baseboard, using a T-square or carpenter's steel square. The size of the rectangle should be the size of the largest print you intend to make plus $\frac{1}{2}$ inch, i.e., $16\frac{1}{2} \times 20\frac{1}{2}$ inches for 16×20 prints (see drawing A).

Cut and assemble the molding to fit the drawn rectangle, as shown in drawing B. I used an old aluminum window frame found in a mobile home scrap yard, but any kind of wood or plastic molding can also be used. Attach the molding to the baseboard with screws, nails or cement; use the appropriate method for your molding material. At this time, you might also want to mark the baseboard for additional print sizes (8×10 , 11×14 , etc.). Be sure to use a marker that is *not* water-soluble, or the markings will dissolve when the hectograph solution is poured into the easel.

After mounting the molding, level the baseboard. This is essential. You will be pouring a liquid into the frame, and if it is not level, your print surfaces will not lie at a right angle to the enlarger axis, and uneven focus can result. Once the baseboard is level, run a strip of masking tape all of the way around the outside of the molding to prevent the gelatin from seeping out before it cools into a solid. You are now ready to brew the gelatin.

Assemble the following ingredients: two pints of glycerin, 16 teaspoons (six envelopes) of plain Knox gelatin, $1\frac{1}{2}$ cups of cold water and 14 drops of oil of cloves (the latter is optional—it prevents fungi in tropical climates and makes your kitchen smell great).

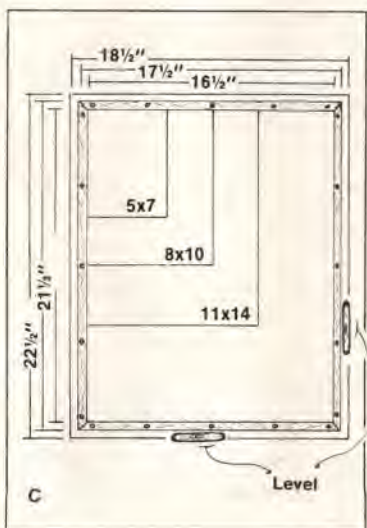
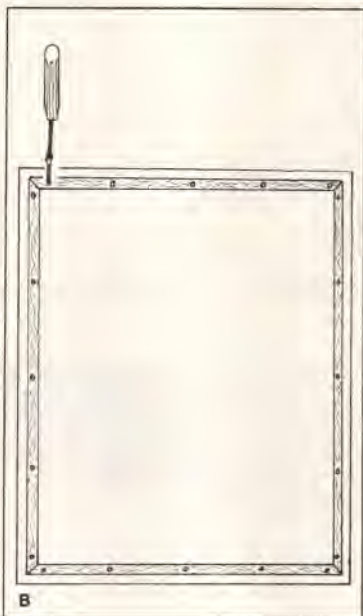
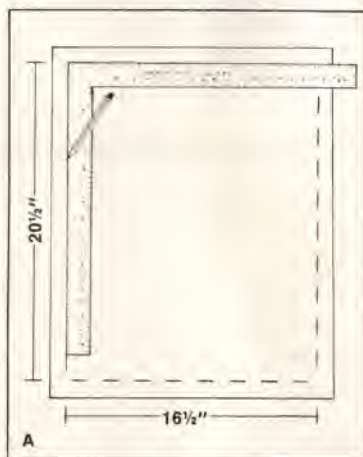
Prepare the gelatin as follows: 1. Place the gelatin in the top part of a double boiler; cover with the water. After the gelatin softens, put the pan over hot water (slow fire) until the gelatin is dissolved. 2. In another pan, warm the glycerin. 3. Add the glycerin to the dissolved gelatin. Cook the mixture over boiling water for 20 minutes. 4. Pour the

cooked mixture into your baseboard molding and let it cool for 24 to 48 hours. If bubbles appear during pouring, they can be moved to the edge and taken out. Note: all of these chemicals are edible, and they wash right off of pots and pans.

When the cooling/drying time has elapsed, blot the surface of the easel gently with clean paper (like stock newspaper). You are now ready to make those beautiful 16×20 s without having to trim off the white borders.

DISCUSSION: Keep the easel covered when it is not being used (large plastic garbage bags are ideal for this purpose) to prevent dust buildup that lessens the surface adhesion. If the gelatin does get dusty accidentally to the point that prints are not sticking properly, simply wipe the surface with a damp sponge and it will be revitalized. The gelatin is relatively strong, adhesive and permanent, but if it should be damaged through abuse, it can be scraped out of the frame, reheated in a double boiler and repoured to make a new easel.

For those of you who like to experiment and who may be interested in additional applications of this process, alum can be added to make the hot liquid congeal better (as, for example, when the liquid is to be used to coat cloth or similar porous material), and sugar can be added to make the final product harder than it normally is when cool. It will be necessary for you to try different amounts of sugar or alum to obtain the desired results. □



Drawing A: After cutting baseboard to size, draw border of desired size (see text) on easel surface with T-square or carpenter's square.

Drawing B: Next, install molding outside of drawn lines and run a width of masking tape around outer edge of molding to prevent liquid from leaking while it cools into a solid.

Drawing C: Now draw inner lines for smaller size prints with waterproof felt pen. Level the easel in both directions shown so print surface will be parallel to negative plane to ensure uniform focus of image. Any inexpensive bubble level will do the job.

HOW TO PHOTOGRAPH A ghost

CAPTURE THE SPIRIT OF THE OLD WEST
BY JIM STANFORD



Ghost town graveyards are always worth a visit. Graves of the affluent were surrounded by ornamental iron fences, while simple wood headboards sufficed for the miners.

There's a revival of interest in the romance, history and nostalgia of Western ghost towns as our Bicentennial approaches. But the flavor of these unique remnants of our heritage can't be fully appreciated without a camera to carry part of it back home with you and to preserve the images of relics that won't be around a very few years from now.

I began taking pictures of the old mining camps of California, Colorado, Nevada, Washington, Oregon and Montana more than 20 years ago. Last spring, while revisiting some of the abandoned towns I had first seen many years before, I found myself wishing

that the ghost town bug had bitten me much earlier.

Sure, the ghost towns are still there—still standing as monuments to the legends of the early West—but the years have taken their toll. A classic old church in Dayton, Nevada, had completely disappeared. A hundred-year-old miner's shack at Gold Hill had been destroyed by a new mining operation, which was building a huge mound of tailings in the historic gulch. Virginia City, Montana, had been so completely restored that it looked more like a movie set than an authentic gold camp of the 1860s. To my further dismay, the beautifully weathered siding

ghost

of the Fourth Ward School in Virginia City, Nevada, had disappeared under a brand-new coat of paint.

Restoration, I hasten to add, is essential if the ghost towns are not to disappear. When we visited Skidoo in the hills west of Death Valley, we found nothing left to tell us where the town had been but a pile of rusty tin cans and broken glass bottles. Nothing remained of some of the buildings I had photographed in Elkhorn, Montana, or Roslyn, Washington, but forlorn heaps of rotting lumber and a few hand-wrought nails. Still, a building that shows its age is a better subject for the interpretive photographer than a refurbished prototype. Consequently, I'm taking better care of negatives that I made two decades ago.

The aesthetic approaches to photography in the ghost towns can range all the way from "I-was-there" snapshots to creative efforts which capture the sadness of decay and neglect. Historical records of the architecture and details of construction may seem dull and routine to you now but may be of value to future generations when many of the old wooden buildings have ceased to exist.

Before you start exposing film, however, I have a few suggestions to keep you out of trouble.

1. Check the route and the road conditions before you take off. Ghost towns are seldom located on paved roads. They have survived because they are in remote areas and can be reached only by gravel or unsurfaced roads, which may range from poor to terrible. Many, however, are accessible without danger and without special equipment.

2. Respect "No Trespassing" signs. Many of the buildings are privately owned. Besides, there is real danger in prowling the interior of a building that was abandoned a hundred years ago. Floors may have rotted; stairways are rickety, and a careless step may land you in the hospital (which is likely to be 50 or 100 miles away). You can get your interiors by shooting through windows or open doorways.

3. Be careful with fire. Flames have destroyed more ghost towns than wind,



snow or slow decay. The wood and surrounding brush is tinder dry in the summertime, and of course, fire-fighting equipment is seldom available.

4. Don't carry away souvenirs. Old furniture, stoves, kitchen utensils, doorknobs and the like add greatly to the 19th century flavor of ghost towns. Leave them for future visitors to enjoy.

Seldom is a ghost town completely abandoned. Often there is an old-timer in residence who loves to talk about the history of the place. In some cases, as in Elkhorn, Montana, some of the old buildings have been converted into summer recreational homes. Other historic towns, like Virginia City, Nevada, are plastered with signs and aswarm with tourists during the summer season. Even here, however, there is still good hunting for a perceptive photographer. There are still buildings which show the ravages of time, as well as beautifully preserved examples of 19th century architecture. The trick is to prowl the back streets and utilize careful framing to eliminate telephone poles, signs, automobiles and other evidences of the encroachment of the 20th century.

The graveyard of an abandoned town is always worth a visit. Here, the history of the place is most palpable, and the aura of neglect is most evident. Graves are often surrounded by decaying pickets or wrought-iron

fences. Headstones have been etched by wind and weather, and many of them have fallen or lean at a crazy angle. Occasionally, a pitiful bundle of artificial flowers gives evidence that someone still cares and remembers a miner or tradesman who died many decades ago.

There's something in the old mining camps for both color and monochrome photography. The unpainted pine siding of miners' shacks has weathered to rich brown tones which contrast with the delicate yellows, pale greens and purples of desert growth around the buildings. Ancient wallpaper, often hanging in shreds, retains a suggestion of its original color. Spring in the dry country often brings wild flowers crowding around vacant doorways.

For the monochrome worker the words are texture, detail and contrast. More can often be said by photographing a sagging doorway or window or a detail of log construction at a corner than by photographing the whole building. The texture of old siding, rough sawed, curling and full of knots, is a joy to any interpretive photographer. A weathered picket fence, an old wagon bed half buried under sage and tumbleweed, a sway-backed roof shingled with flattened coffee cans—these are just a few of the details that will catch your eye.

You'll need a tripod for maximum de-



1. Rhyolite, on the eastern approach to Death Valley, is easily accessible and contains spectacular ruins. Unlike most ghost towns, the buildings were constructed of stone and concrete.

2. If there are too many signs, light wires or parked cars, you can always move in close for interesting shots of architectural details.

3. Only ghosts now enter this weathered doorway at Bannack, Montana, once the hideout of the notorious Plummer Gang.

tail in texture shots and for long exposures when you photograph interiors. For the latter, a small strobe or flash-gun is very useful. Another useful accessory is a wide-angle lens to use for interiors or to help you in framing out that intrusive sign, parked car or the ever-present telephone pole. Otherwise, the usual complement of photographic hardware will serve you well for this type of photography.

Now, obviously, you aren't going to drive to Bannack, Montana; Hamilton, Nevada, or Bodie, California, jump out of your car, burn up film for an hour and come home with a portfolio of once-in-a-lifetime pictures. I know, because I made that mistake the first few times I prowled the ghost towns. The environment is so extraordinary and loaded with potential that there is an irresistible temptation to "scattergun"—to photograph everything in sight.

I suggest, first, that you do a little research on your subject. I have collected a small library of books about the ghost towns. They are readily available in bookstores or libraries. The best, for my purposes, are: *Western Ghost Towns* and *Ghost Town Album* by Lambert Florin, *Ghost Towns of Montana* by Don C. Miller, and *Ghost Towns of the West*, by the editors of Sunset Books. The first three of these have maps and detailed directions for finding the old towns; all of them are

well illustrated and filled with stories and historical information about each town. Florin even adds a few paragraphs of practical advice for photographers. Armed with such information, you'll have a better idea what to look for and how to avoid clichés.

Plan to spend enough time at your chosen ghost town to observe the relative changes that morning, midday and evening light can produce. Better still, go back several times at different times of day and under different weather conditions. Meantime, study your pictures that didn't quite come off and visualize what you could have done to improve them.

The existing ghost towns are fragile and impermanent. There will never be more of these relics of the past than there are right now. With the interest in history and nearly forgotten ways of life that the Bicentennial celebration is producing there will never be a better time to give them your photographic attention and unique interpretation. □

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110 PHOTOGRAPHY

KALTON C. LAHUE

WILL THE SUN SET IN THE LAND OF THE RISING SUN?



□ What's wrong with the Japanese camera industry? If your answer is either the obvious energy shortage or the increase in Japanese wages (in some cases, almost as high as those in the U.S., comparatively speaking), you'd only be partially right. Actually, Japanese camera manufacturers have long suffered from a syndrome which defies rational explanation. Perhaps it can best be described as an example of "Father knows best," and in this case, "Father" is the defunct German camera industry, when by all rights, it should be Eastman Kodak, as we'll see.

This deification of the Germans has a great deal to do with the fact that Yashica and Zeiss have recently joined hands, as did Minolta and Leitz previously, to produce a "super 35mm," while the Kodak pockets (made in Rochester) are selling on their home turf like proverbial hot cakes—at a rate never anticipated by either Kodak or the Japanese. This information is derived not from Kodak but from the authoritative *Japan Camera News*, Japan's leading trade journal. Within three months after sales of Kodak pockets began in October 1972, by Nagasa & Company (Kodak's Japanese sales agents), an astounding 95,000 had been peddled. And remember, only U.S.-made Kodak film would fit them, so those happy Japanese clickers were not only buying Rochester's cameras but its film as well (and that's where the profit really lies). By July 1975, over 1,000,000 Kodak 110 cameras were in Japanese hands. And only a small handful of Japanese companies had climbed into the 110 fray.

But back to my original point. For all its innovation in 35mm cameras, the Japanese industry has never contributed anything basic to photography. There have been no new film formats, no radical camera designs, no real breakthroughs offered such as the 35mm, 126, Polaroid and 110 ideas that have come primarily from the U.S. and Germany, to a lesser extent. Not that the Japanese couldn't do it—they just haven't. Now, someone is bound to write me that Single-8 movie film is original, but remember it's Kodak super

8 in actual format, just the packaging is different.

The main problem with the Japanese seems to be that they continue to worship at the feet of a fallen idol—the German camera industry. While their innovations were responsible for its virtual destruction, the Japanese still stand in awe of past Germanic glories. The most outstanding example that comes to mind was their dogged determination in following Germany's answer to Kodak's drop-in 126 cartridge—Rapid or "Rap-

nese companies, despite the fact that Kodak was exceptionally quick to license their manufacture. Why? Well, I can only guess, but the Germans had tried submini 16mm cameras (with film very much like the Rapid), and even mighty Rollei failed. A few Japanese companies such as Minolta achieved fair success with 16mm, but nothing earthshattering, so why should that upstart in Rochester do any better? Ah, so.

Obviously, I'm bearing down a bit hard on the Japanese, but I think one



With the introduction of the Kodak Pocket Instamatic close-up camera available from Lester A. Dine, Inc., 2080 Jericho Turnpike, New Hyde Park, New York 11041, 110 photography takes another giant stride forward—and where are our Japanese friends?

eed," as it was more correctly termed. While little more than a tired variation on the old Memo system, the Japanese embraced Rapid with a vengeance, producing cameras by the thousands, most of which are rumored to be still collecting dust in warehouses.

It took them more than two years to make 126 cameras and then only after the Germans admitted defeat. *Asia Scene*, another authoritative Japanese publication, reported that the year after the Kodak Instamatic cameras were introduced, the Japanese industry was almost literally wiped out, with 35mm sales dipping to a point where they all stopped production and agreed to split the market in order to let everyone survive, certainly an interesting approach, if not exactly one of free enterprise.

Almost unbelievably, the same "they have nothing that will sell" attitude was exhibited toward the Ektasound movie camera. Only now are Japanese manufacturers making them—almost two years after their introduction in the U.S.—and the most interest in getting to market was shown by Chinon, which has apparently modeled itself Japanese-style after Eastman Kodak. And what of 110 cameras? Only one company—Sedic—really makes 110 cameras in quantity, and most of its production is sold under brand names of other Japa-

of their problems, in addition to an unhealthy admiration of the Germans, is that they fail to see the genuine value of a system, which they equate with a camera and lots of accessories. By a system, I mean a camera with a film and a means of making that film easy for the consumer to use and easy to process. While Ektasound is going great guns, many German/Japanese manufacturers showed new dual system super 8 sound cameras at the 1974 Photokina—turkeys requiring the connection of a tape recorder to the camera similar to the Bell & Howell disaster of some years back. While they work after a fashion, the result is simply not worth the effort when you can drop in a super 8 sound cartridge and get sync sound with no fuss at all.

Pocket cameras and 110 film form a system that's not only easy to use but easy on the photofinisher because of its built-in masks and other features, and it gives a big print that's exceptionally sharp—ultimately and immediately satisfying to the consumer. It's one of the reasons 110 and pocket photography are here to stay and why the Japanese with their big, expensive and exotic 35mm single-lens reflexes had best stop resting on their declining sales while they look to Germany for guidance—look west to Rochester, *papa san*, and go 110! □

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BICENTENNIAL NEWS



Fuji Photo Film, U.S.A., Inc., announces a super photo contest to encourage Americans to **Picture America** with a 1976 AMC Pacer as top prize. Second prize is a 10-day Hawaiian holiday for two plus \$200 spending money; third prize is a four-day trip for two anywhere in the continental United States—two third-place prizes will be awarded.

In addition, 55 other prizes of Fujica cameras will be awarded, including the top-of-the-line Fujica ST901 automatic camera.

The two major contest requirements are that all photos be taken with Fuji film and that the pictures "say" America. Closing date for all entries is July 31, 1976. Complete details and entry blanks are available from camera dealers handling Fuji films and products.

* * * *

Spirit of America Bicentennial film is now available from **Cinema Eight**, a division of Cinema Concepts, Inc. a major nontheatrical distributor of motion pictures to schools, libraries and private collectors.



The film is a fast-paced full-color visual montage depicting the story of America's growth from colonial times to the present. **Spirit of America** runs three minutes and is available in regular 8mm or super 8 color silent for \$7.95 or in super 8 color magnetic sound at \$12.95. The film is available through local photo dealers or directly from Cinema Eight. For further information write to "Spirit of America," Cinema Eight, Chester, Connecticut 06412.

Please address all submissions and releases for "Bicentennial News" to Bicentennial Editor, c/o Petersen's PhotoGraphic Magazine, 8490 Sunset Blvd., Los Angeles, California 90069.

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TOKYO NOTEBOOK

M. A. HADLEY

TWO PLACES IN TIME



□ Being in two places at the same time seems impossible in the real world, but through the mass media it is not only possible but often happens. Society's time machines are our cameras and tape recorders, and I have almost as many of the latter as of the former—the former totaling an even two dozen at last count.

If this makes you think I'm something of a camera nut, you're absolutely right. Who else but a nut would place an order for a camera that's only in the preproduction stage? And to make matters more intriguing, the manufacturer doesn't even know the retail cost but expects it to be "above \$1000." An educated guess would place it in the \$2000 to \$3000 category, once all costs, including advertising and public relations, are tallied.

Designed in Canada and introduced at the 1974 Photokina, the new camera's first parts were fabricated in Taiwan; the lens made in Japan, and the entire camera to be assembled in Vancouver, British Columbia, Canada. Order books are expected to be opened at the PMA Show in Chicago this March.

And when I tell you that the maximum aperture is $f/16$ and the fastest shutter speed is one second, you'll really think I've gone crazy. But I honestly kid you not.

Let me start at the beginning—a telephone call from Mr. Atsuo Mohri, president, Universal Enterprise Corporation, No. 2 Sky Bldg., 127 Banshu-cho, Shinjuku-ku, Tokyo. He requests that I call at his office to meet Christopher C. Y. Wong, president, Wonderview Optical Industries of Canada Limited, and Ken C. Y. Law, vice-president and production manager of the same firm.

Atsuo's third-floor hideaway is lined with photo accessories, lenses, spotting scopes, sundry cameras and even includes a commercial illustration studio—all a pleasant distraction for a reporter seeing a man's office for the first time. But I was soon shown the object of interest—the Wonderview Model S-102—a full-function standard professional view camera with all the swing, tilt, rise and fall functions demanded by the discriminating modern, professional photographer.

Two departures from standard equipment mark the unit as distinctly unique—completely detachable front lens mount and removable film holder back. I found myself looking at a one-shot, single-square lens *stereo* camera using 8x10 film.

That square lens is not really square; it's rather rectangular in shape with the functional optical curvatures. Maximum



I'm first in line for the yet-to-be-marketed Wonderview Model S-102 three-dimensional camera. Camera will accept conventional lenses and shutters as well as film holders with accessory back. Photo courtesy of manufacturer.



diaphragm aperture is $f/16$. Shutter is a motor-driven, scanning type with diaphragm control. Speeds are one, two, four and five seconds. The film back is a neat solution to the film-flatness-in-the-focal-plane problem. The one-sheet film holder has a knob on the back that, when turned, presses the film against a lenticular screen for the exposure. The lenticular screen, like the aperture-shutter, is also power-driven, moving slightly during exposure to secure the three-dimensional effect. A synchro-cable links shutter and back during the exposure. Power is supplied by six penlight batteries.

An enlarger will be available as well as professional and studio processing compatibility and the establishment of commercial finishing facilities for the professional. Yes, the finished color print (or transparency, depending on method of viewing) must be laminated to a lenticular screen for viewing. Registration is critical. Then I was shown the good salesman's clincher. A full-color 8x10 3-D print. That's when I took the bait—hook, line and sinker.

Wrapping it all up, I then met Mr. Ray Man Leung, chairman of the board. We talked long into the night

about the camera's potential and about the plant facilities in Canada. The head office is located at 1927 E. Hastings Street, Vancouver, B. C., V5L 1T5.

NEWS SCAN

Sanwa Giken K. K., 3-27-13 Koshigawa, Bunkyo-Ku, Tokyo, is offering local photofinishers a method to produce portraits on rubber stamps; the stamps sell for 2700 yen (\$8.88). The starter kit, patent No. 49-80635, includes a vacuum frame with halogen lights, photolith screen, special developing solution, liquid resin and 100 stamp mounts, all for \$1562.50. A refill set of materials is priced at \$16.44.

Perhaps the fastest-yet home development of negative color film and prints may soon be offered to Japanese color film users. Photo Technology Ltd., Potters Bar, Hertfordshire, England, is seeking a Japanese manufacturer for production under license of their Photocolor II Process, claimed to process Fujicolor II and Sakuracolor II in half the conventional time and at 37-percent less-than-normal cost. Only two solutions are required. The process will be displayed May 18-22 at the British Export Center's exhibition of photographic equipment here in Tokyo.

Innovation is the name of the game, and some of my sources predict that Kodak's Tele-Instamatic 608, placed on sale here on October 10, 1975 is but a glimpse of things to come.

Trade sources predict that the Argus brand will reenter the international market after a hiatus of about five years, following an agreement to establish Argus Ltd. (Japan) between Interphoto Corporation and Duplan Ltd., of Hong Kong.

The "gray market" in Japanese cameras—procurement of local products for retail sale through unauthorized sources—is a source of constant worry to local manufacturers. A grapevine rumor said that the industry's association was dispatching a member to Europe to explain locally instituted safeguards. A call to JCIA (Japan Camera Industry Association) confirmed that one of its members had just returned from a 30-day European investigative trip. A friend just arrived from Hong Kong told me that a clerk there was confounded by what he thought was a counterfeit Pentax immediately after the K Series went on sale in Japan.

PRO TIP

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MAKING VISUAL ECHOES



□ Drive a pointed stake into the ground and no one takes notice; drive 1000 pointed stakes into the ground, and people offer their compliments on your lovely picket fence. Make a photograph of a car on a highway, and it's just another photograph; but show that highway filled to capacity with bumper-to-bumper rush-hour traffic, and you've made an image with lasting impact. In each case the important difference is caused by the strong influence of repetition on the viewer's perception. The accompanying photographs illustrate one way that I have chosen to apply this effect.

The photograph itself was made last October, at the opening reception for the International Invitational of Photography, sponsored by the Volunteer Service Photographers (VSP), in New York City (see November, 1975 "Club Close-Ups"). The image shows a night-time street-level view of the second-floor exhibition center where the opening reception was held. The photographs on exhibit were donated by hundreds of photographers whose names read like a Who's Who of photography. This work, which was auctioned as a major fund-raising event for the VSP, represented the combined energies of many of the world's best photographers. "How?" I thought, "could this opening night event be photographed with freshness and in such a way as to do justice to the quality of work on exhibit?" Convinced that there was absolutely no way to produce that sort of an image, I resigned myself to simply enjoying the show, placing my bid on a favorite photograph and making typical opening night pictures. Then as I was leaving, I looked back once more and saw it. The second-floor exhibition center was visible from the street and, in fact, seemed to glow in the brisk night air.

I liked the boldness of the lines produced by the glass and steel building and the silhouettes created by the brightly lit gallery within. This view is realistically portrayed in photo No. 1. Photo No. 2 was produced in the darkroom by printing the same negative twice on one sheet of paper. The proce-



1



2



3

cedure is simple, but there are a few points worth watching if you decide to try it. Focus and compose your image as you normally would. If you intend to crop any of the negative, be sure that your easel covers the entire sheet of paper except for where the exposure is taking place. I prefer to work with an adjustable easel to enable me to offset the printed image to one side of the paper. Whether or not your easel lets you do this, you can protect the paper from accidental exposure to stray light and at the same time produce a mask of the right proportions by taping strips of cardboard to the top of the easel. Now the only other stumbling block is registration.

Some sort of registration is important, since the paper must be taken from the easel after the first exposure and then repositioned in the right place before making the second exposure. I have found that the simplest way to properly reposition the paper in the easel is by using another full sheet of paper of the same size I am printing on. Get in the habit of always placing the paper into the easel so that it lies in the same spot. Usually there is a metal stop of some sort to butt the paper against. If not, you should make a small mark on the easel to visually align the paper each time. Next, place the spare sheet of paper in the easel and trace some prominent features, using the projected image as your guide. A thin-line marking pen or sharp pencil should work well. It's not necessary to draw the entire image; illustration No. 3 is the actual reference drawing that I used in making the double exposure. As you can see, the border boundary is marked as well as a few prominent lines. After making this reference tracing, remove this paper and make your first exposure. Now remove the paper and mark it lightly on the back with a pencil. I place an "X" on the top of the paper, then look for the "X" when putting the paper back in for the second exposure. That way, the image is sure to be properly oriented.

Between exposures, turn the negative over and upside down in the negative carrier, being careful not to inadvertently change the image size. Then, by projecting the image adjacent to the tracing made earlier and visually aligning the two, you can rearrange the easel to make the second exposure on the previously unexposed part of the paper. As long as your tracing was carefully done and you replace the paper properly, your results should be perfect.

The mirrorlike symmetry and repetition of patterns combine to form images which can be far more graphic and visually interesting than the originals. Other variations might include making one exposure lighter than the other or making the second exposure from a duplicate, high-contrast negative, which would make the reflection even bolder. Of course, there's no reason to limit yourself to just two exposures. Now do you get the picture? □

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□ There have been so many letters with similar requests that I feel I must respond even though I cannot recommend a specific correspondence school. It's not because there are no acceptable schools, but rather any recommendation I make would only be a blind guess, probably inappropriate and possibly misleading, not knowing your interests, past experience or your level of development.

What I will recommend are some of the latest books about photography. They provide an education in themselves. Some are exemplary of the world's best photography; some are stimuli to the imagination, and some are guidelines to accomplishment.

Silver Meditations by Jerry N. Uelsmann (Morgan and Morgan, Inc.), \$14.95, is a beautifully produced book of the most provocative and well-executed images from a prolific and creative photographer. You don't even have to like the images to appreciate what can be accomplished with the photographic medium. Each page is a unique stimulus to venture out and find new ways of seeing with the camera.

The Nude in Photography by Arthur Goldsmith (Playboy Press), \$19.95 is a comprehensive volume and the answer to those who question the validity of the nude as a photographic subject. Goldsmith's tasteful selection of illustrations and careful research reveal a historically based, serious interest by a multitude of great photographers who have made the figure their subject. It is a book that is a strong inducement to take a second, sober look at a most challenging and rewarding subject to photograph.

Creative Camera International Yearbook 1976 is edited by Colin Osman and Peter Turner (Light Impressions,

U.S. distributors), \$17.50. If artistic accomplishment in black-and-white photography is your interest, this book is a vital necessity. Containing a range of contributions from around the world, with some in-depth historical perspectives, this volume is more than a collection of the finest photographic art exquisitely reproduced. It is also a chal-



lenge to the thinking photographer, with clear, concise commentary.

Photography '75 is edited by Walter Herdeg (Hastings House Publishers, Inc.), \$37.50. As an annual *Photography* is unique. It is likely the most comprehensive, eclectic compilation of the world's most successful photography. Examples of some of the finest photographic illustration from all of the most critical markets for professional work are included. Each picture is doubly selected, first for its original use, second for *Photography*—both selections involving artistic merit and excellence.

Eternal America offers photos by Yoshiakazu Shirakawa (Kodansha International Ltd., Harper & Row, U.S. distributor), \$60. Seeing familiar scenes through the special photographic vision of Shirakawa is a distinct pleasure. But even more, the book teaches us that, regardless of how many times a scene is photographed and made a part of our daily lives, there is always the potential for new visions of the grandeur of the American landscape. Experiencing the images is like seeing America's beauty for the first time—and that is the *only* way a photographer should see all of

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Filters and Lens Attachments for Black-and-White and Color Pictures, Kodak Photo Book AB-1 (Eastman Kodak Company), \$1.95, is a comprehensive basic guide to special effects through filters and other optical lens attachments. It's a new, well-organized and illustrated manual that includes the basics of how to create the popular effects of nostalgia—the soft, romantic look and many other contemporary techniques.

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Beach Patterns: The World of Sea and Sand is photographed by Stella Snead (Barre), \$12.95 cloth, \$6.95 paper. *Beach Patterns* is an interesting combination of strengths and weaknesses. It is an excellent example of the value of creative vision in photography. Though some pictures, however, that have never been included, very fine images suffer from design in the book's layout. Words and pictures are so reading the excellent introduction by Gyorgy Kepes, much value can be derived from Stella Snead's vision.

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